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2 A Summary of Current Program, 9/30/66  
and Preliminary Report of Progress  
for 10/1/65 to 9/30/66

MARKETING ECONOMICS DIVISION  
of the  
ECONOMIC RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE  
and related work of the  
STATE AGRICULTURAL EXPERIMENT STATIONS

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This progress report is primarily a tool for use of scientists and administrators in program coordination, development and evaluation; and for use of advisory committees in program review and development of recommendations for future research programs.

The summaries of progress on USDA and cooperative research include some tentative results that have not been tested sufficiently to justify general release. Such findings, when adequately confirmed, will be released promptly through established channels. Because of this, the report is not intended for publication and should not be referred to in literature citations. Copies are distributed only to members of Department staff, advisory committee members and others having a special interest in the development of public agricultural research programs.

This report also includes a list of publications reporting results of USDA and cooperative research issued between October 1, 1965, and September 30, 1966. Current agricultural research findings are also published in the monthly USDA publication, Farm Index. This progress report was compiled in the Marketing Economics Division, Economic Research Service, U.S. Department of Agriculture, Washington, D.C.

UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D.C.

October 1, 1966



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## INTRODUCTION

The marketing system for domestically produced food and fiber is large, complex, and dynamic. Each year the system handles a growing volume of goods; new services are provided; and it becomes progressively more efficient. Moreover, the structure of the system is continually undergoing change in response to forces from within as well as outside of agriculture. The research effort in the Division is concerned with changes as they affect the present and future efficiency of marketing farm products and the equitable distribution of benefits to those performing services.

The efficiency with which the system operates is highly correlated with the productivity of the total economy and this in turn with the general well being of the people. Changes which demand continuous research effort by highly trained scientists include: kinds of products manufactured and their resource requirements, the technology utilized and costs incurred, channels of trade through which food and fiber move from producer to consumer, size and number of firms and their interrelationships, bargaining power between buyers and sellers, price and pricing policies for farm commodities, interregional competition, and trading relationships among components of the marketing system.

The initial organization of the Division was established in 1961. In the interim, research needs and program requirements have substantially changed. In the past year an intensive evaluation was made of the Division's program of work in relation to the organizational structure under which the work has been conducted. Our program evaluation pointed to the needed achievement of several major goals. The achievement of these goals in turn required changes in the organizational structure of the Division. The major program goals indicated by the evaluation were:

- (1) Emphasize aggregate marketing analyses and relate such analyses to work on evaluation of changes in market structure, measurement of market performance, development of price spread information and other market statistics, interregional competition, and transportation of farm products.
- (2) Improve the Division's overall program of work on measuring market performance. Develop improved techniques and procedures for measuring and evaluating market performance along with obtaining better cooperation from industry groups in furnishing more accurate and timely information. Particular emphasis is needed in identifying and measuring cost and profit components making up price spreads as highlighted by the National Commission on Food Marketing.
- (3) Explore in depth certain issues raised by the National Commission on Food Marketing; such as, the role and cost of advertising in

food marketing and the impact of increasing size and concentration upon competition among firms in the food industry, analysis of changes in methods and costs of transporting food and the effects of changing rate structures on location of marketing facilities along with probable future trends.

- (4) Better understand and appraise how prices for farm products are established in the marketing system. Such work would involve measuring the extent to which competition prevails in the market, degree of bargaining power between buying and selling forces, and the ease with which new firms can enter the industry along with the competitive environment faced by them as compared with firms well established within an industry group.
- (5) Strengthen the work in determining market expansion possibilities and potential for agricultural products and byproducts under different supply and price situations. Simultaneously determine the impact of new products on the market structure of an industry, requirement and replacement of agricultural resources, returns to producers, and consumer satisfaction.
- (6) Make more effective use of the agricultural economists stationed in regional laboratories by utilizing them in a broader context than has been true in the past.

The restructuring of the Marketing Economics Division which was completed in mid-September reduced the number of branches from 6 to 5. The branches are: Animal Products, Fibers and Grains, Horticultural and Special Crops, Competition and Pricing, and Market Development and Performance. In the new organizational structure, two functional branches--Competition and Pricing and Market Development and Performance--have a coordinating function and do research on problems involving cross commodities, utilizing an aggregative approach. In the commodity branches all industry or commodity problems are brought together providing a total approach to research problems that are basically commodity oriented. The restructuring of the Division is designed to achieve maximum flexibility in using personnel between commodity and cross-commodity branches. This restructuring of the Division provides the proper climate for a comprehensive, integrated research program eliminating duplication of effort and minimizing the possibility of conducting fragmented research.

The Division will continue to emphasize both basic and applied aspects of marketing economics research involving studies on: the physical efficiency of the marketing system, the performance of the marketing system with respect to (a) farmers, (b) marketers, and (c) consumers and transportation and interregional competition.

A staff of 112 research scientists has been working in the Division during the past year. Most studies are developed from data collected directly from

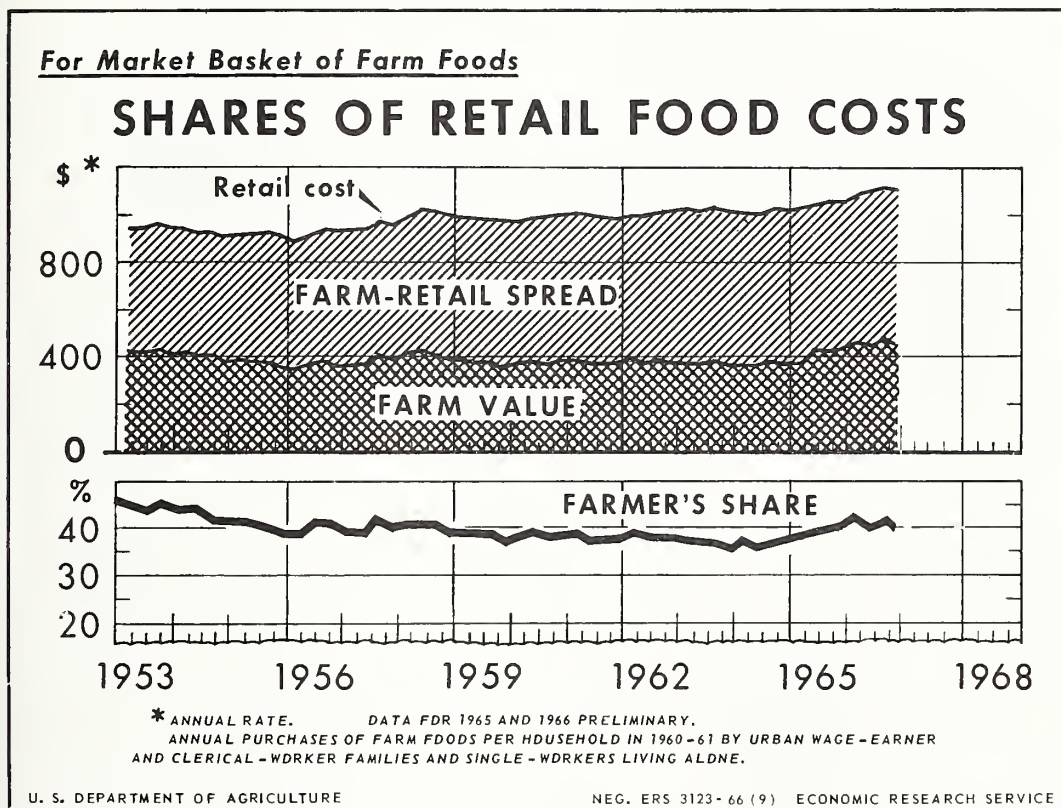


marketing firms and growers. Research projects are frequently conducted in cooperation with other USDA agencies, other Federal departments, and state agricultural experiment stations. The Division cooperates in projects with agricultural experiment stations and participates in regional marketing research as a member of regional technical committees.

A small number of research projects are conducted under contract with private or public research organizations. The research scientists in the Division have access to modern automatic data processing equipment. Washington Data Processing Center facilities are available, and the Division frequently enters into agreements with land-grant colleges and other public agencies for the use of ADP equipment.

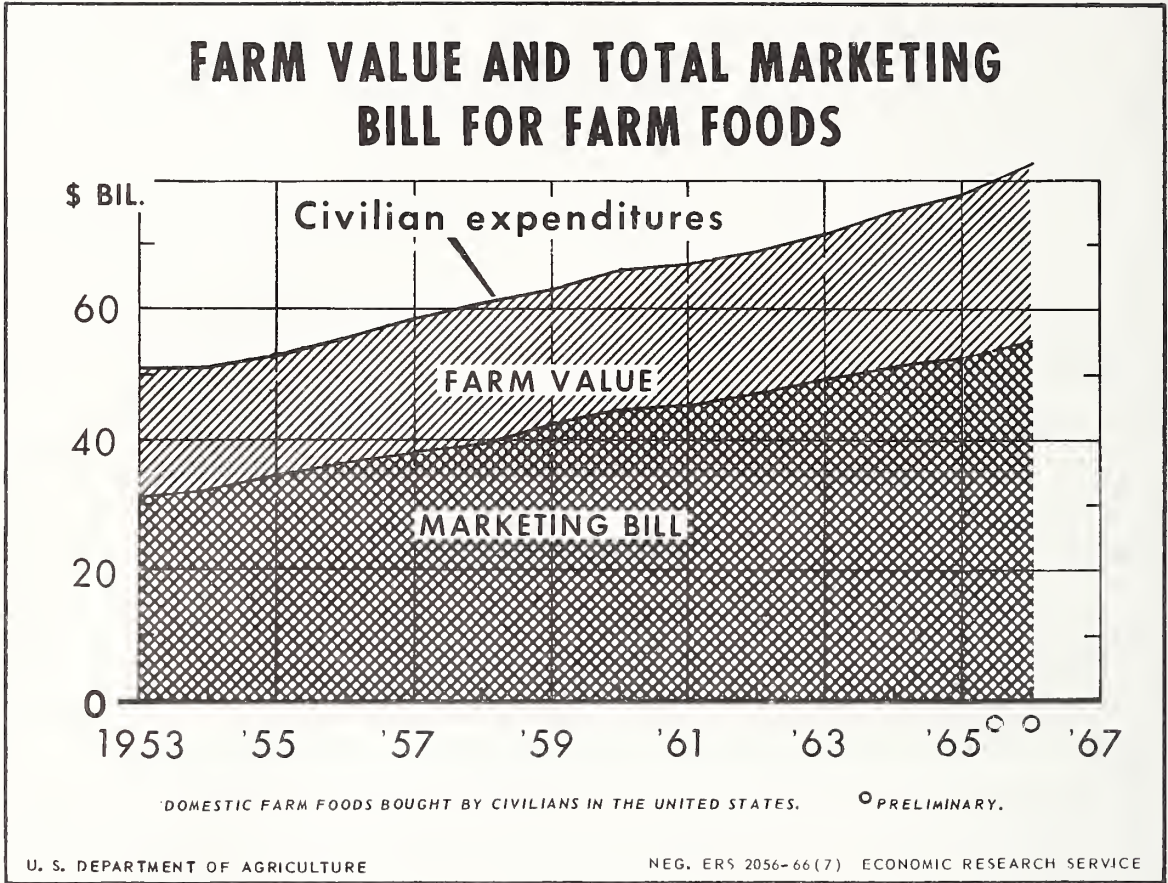
Illustrated highlights of some studies and reports completed during the past year:

Figure 1



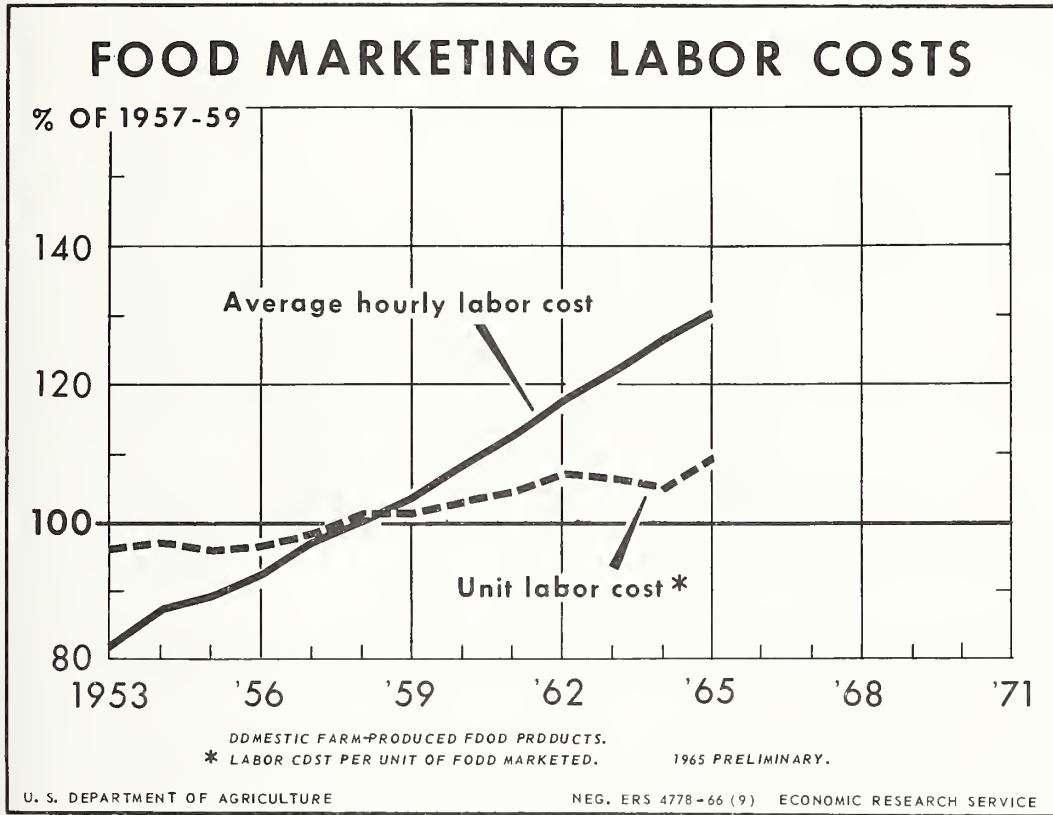
Much of the increase in the retail cost and farm value of the market basket of farm-originated foods in 1966 resulted from decreased production of hogs, milk, and eggs and a few other products. Marketing spreads widened sharply after declining slightly the previous year. Prices received by farmers for farm foods rose for the second consecutive year. Farmers received 41 cents of the dollar consumers spent for these foods in 1966, the largest share since 1955.

Figure 2



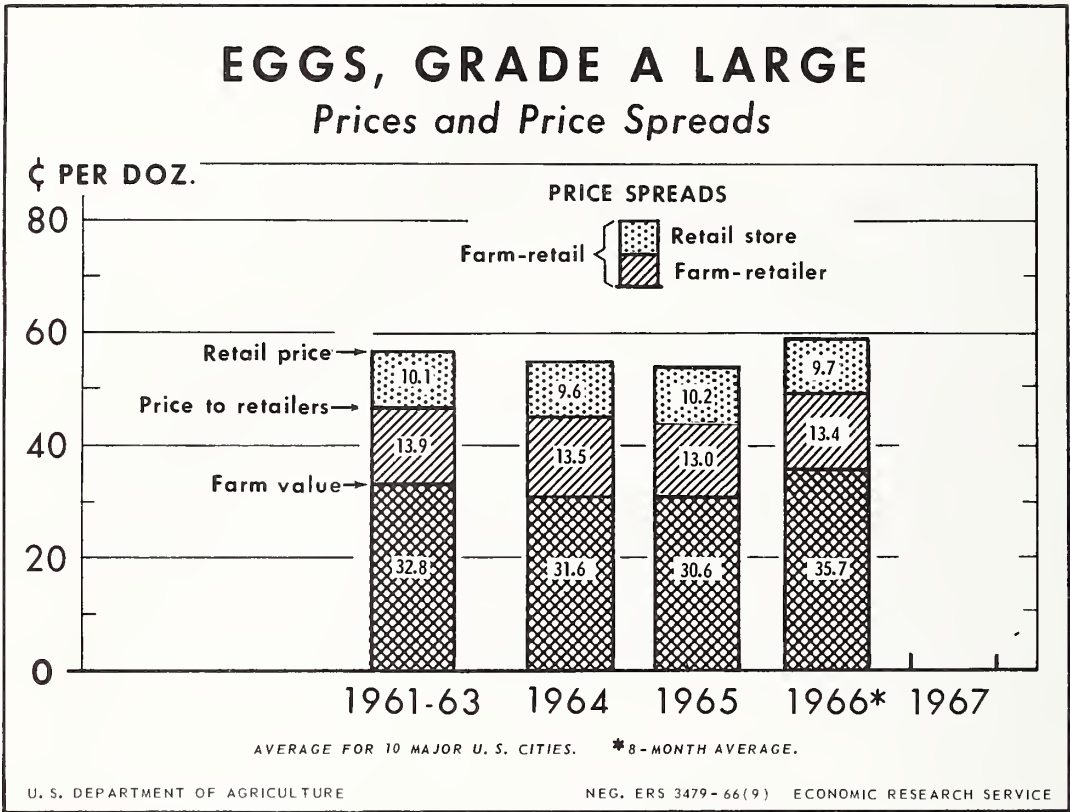
Consumers spent about 6 percent more for farm-originated foods in 1966 than in 1965. Farmers shared about equally with marketing agencies in this rise. The volume of products marketed increased and marketing charges per unit of product rose. The rise in the farm value likewise resulted from increased volume of higher prices received by farmers.

Figure 3



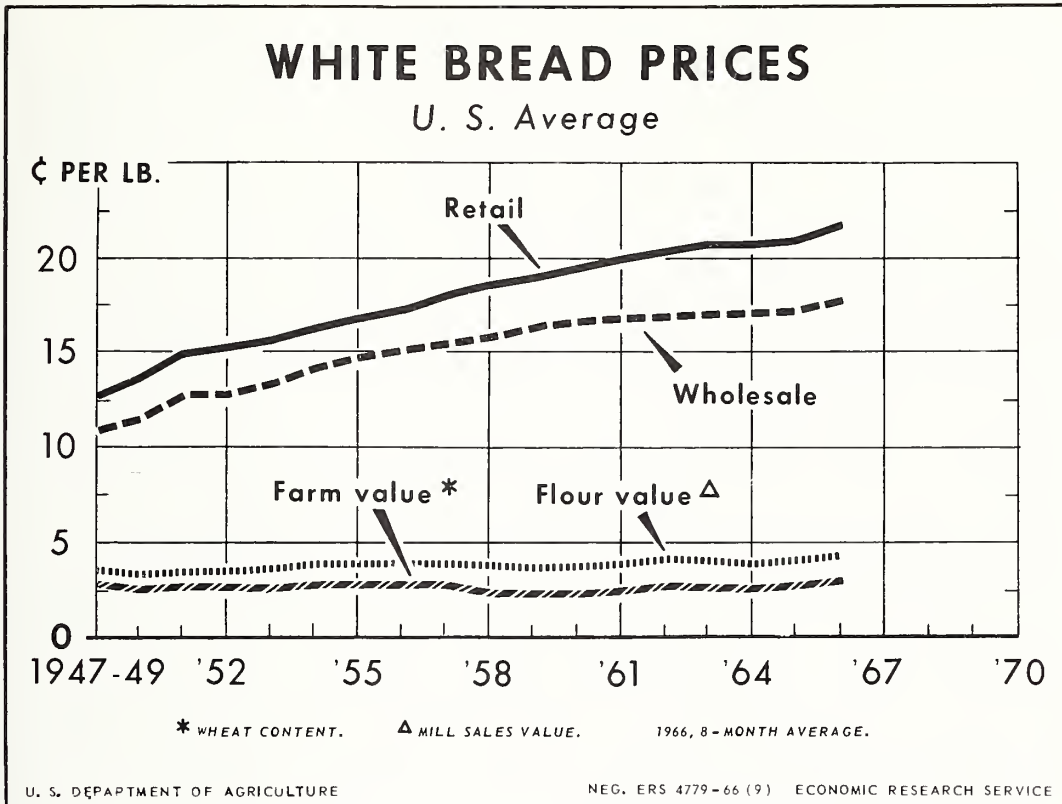
Labor costs per hour in food marketing industries were 46 percent higher in 1965 than a decade earlier. Part of this rise was offset by gains in productivity; as a result, labor costs per unit of food marketed increased only 14 percent.

Figure 4



Short supplies of eggs during the first 8 months of 1966 boosted farm and retail prices to the highest levels since 1958. Farm-retail spreads for eggs have changed little in recent years.

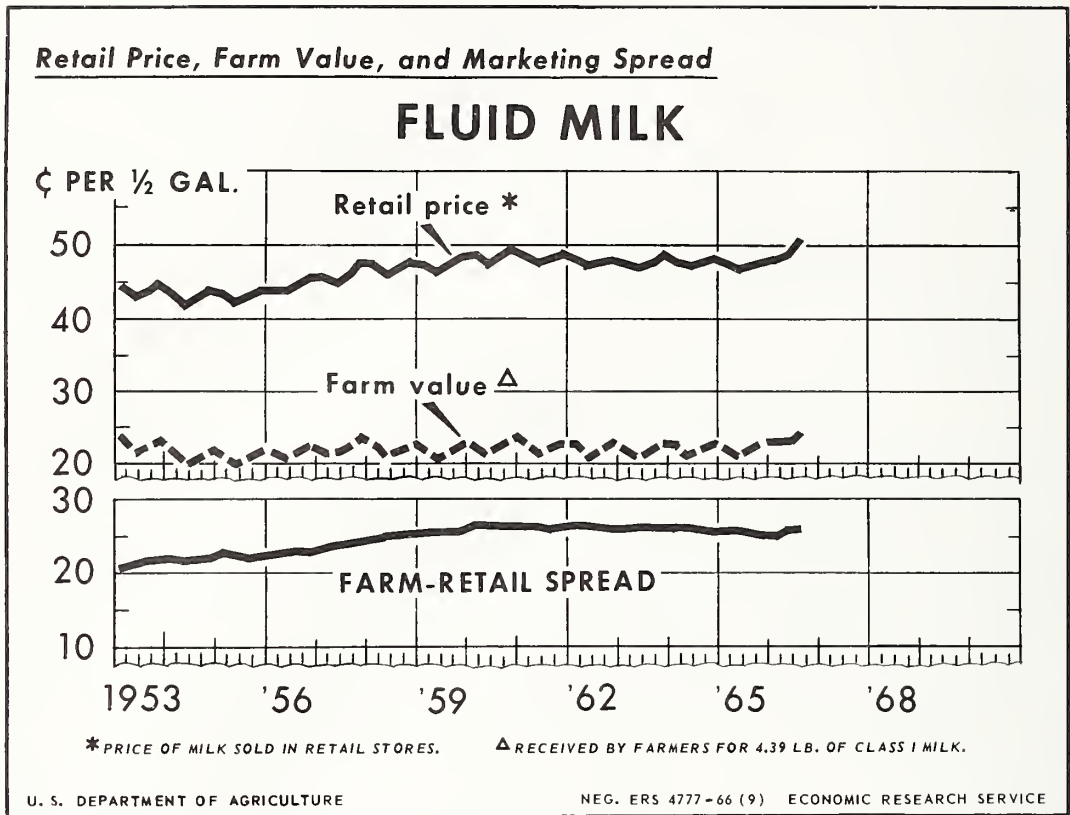
Figure 5



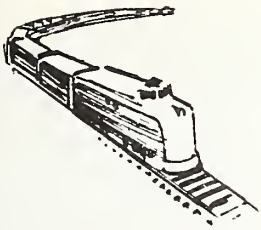
The retail price of bread has risen nearly every year since World War II. More than three-fourths of this rise resulted from wider retailer and baker-wholesaler spreads. Until this year, prices received by farmers for wheat were the same or lower than 1947-49. Increase in wheat prices during the past year accounted for about a fourth of the rise in retail price of bread.



Figure 6



Consumers paid higher prices for fluid milk in 1966. The price rise resulted from: (1) Declining milk production which boosted prices received by farmers for milk, and (2) rising marketing spreads.



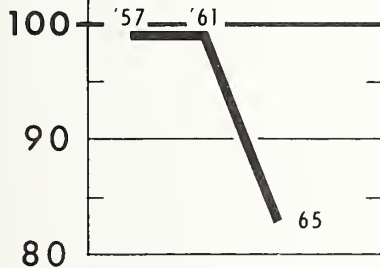
## THE DOMINANT TREND IN RAILROAD FREIGHT RATES

since 1958 has been a rapid decline, especially in wheat, soybeans and fresh meat. Increased awareness by railroad managers of strong competition from trucks, barges and airlines and, perhaps, revision of the ratemaking rule in 1958 explain the downward trend in railroad freight rates.

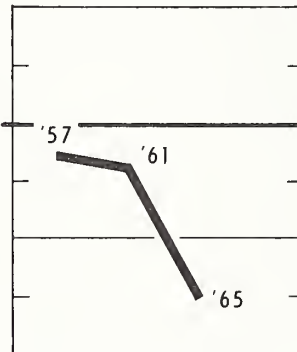
### WHEAT



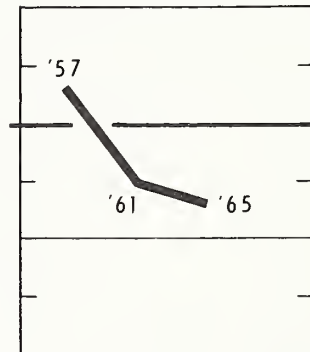
RAILROAD FREIGHT  
RATE INDEXES  
1957-59=100



### SOYBEANS



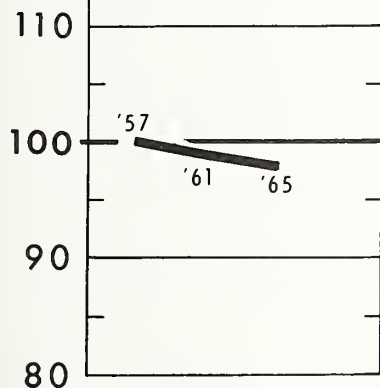
### FRESH FRUITS & VEGETABLES



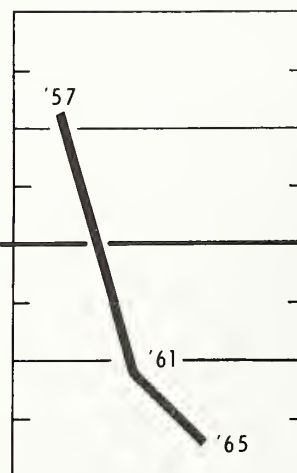
### COTTON



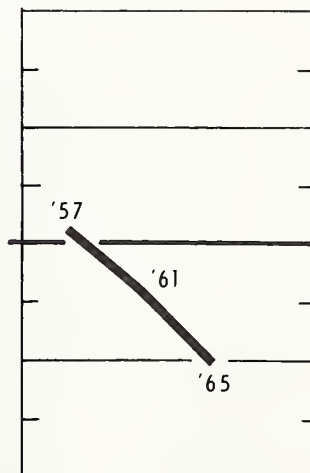
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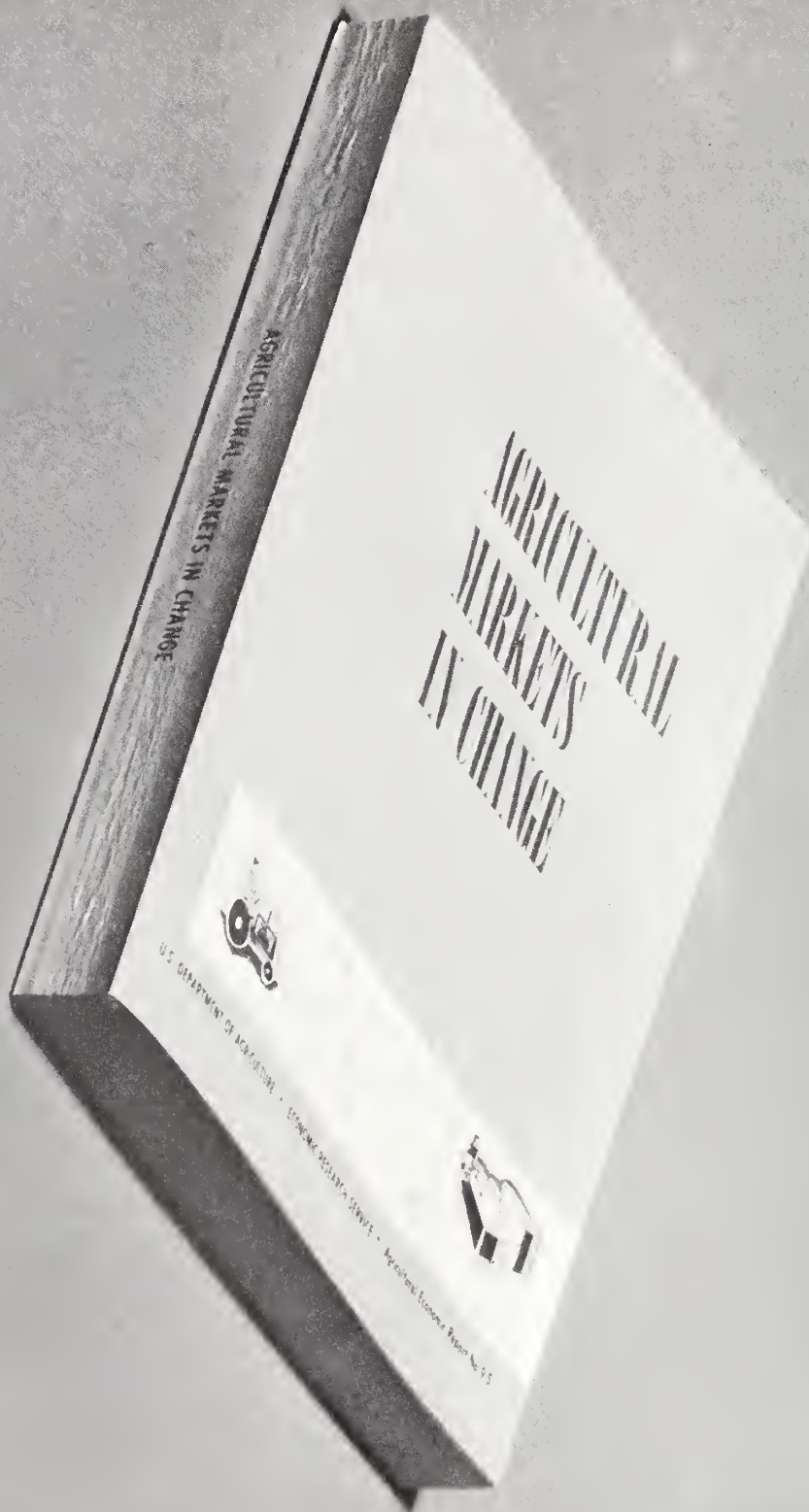


### FRESH MEAT



### COMBINED INDEX







In 1966, the Marketing Economics Division published a book, Agricultural Markets in Change. The content of the book includes a discussion of past and prospective changes in markets and marketing functions for agricultural products. Separate chapters deal with these changes as they relate to innovations, market developments, transportation and various commodity industries. A brief summary of Agricultural Markets in Change follows:

An increasing stream of innovations creates the dynamic nature of the marketing system for agricultural products. They are in response to the changing characteristics and needs of the population. Continual research by both private and public groups is necessary to the development of innovations. At the same time research is essential to measure and evaluate the implications of these innovations to farmers, the marketing system, and consumers.

A high capacity in agriculture to produce gives need for emphasis on the expansion and development of existing markets. Past research in the area of market development has focused on problems related to promotion and to food assistance programs. The problems associated with market development have been approached from both the standpoint of demand and supply.

Significant changes have occurred in the transportation of agricultural commodities. Railroads are no longer the exclusive carrier. Trucks, barges and airplanes compete for this traffic. As a result, railroads have made many downward adjustments in rates in an attempt to retain their competitive position.

Historically, cotton and textiles have contributed significantly to the national economy. However, the competitive position of this basic commodity has been seriously affected by the successful introduction of man-made fibers and by cotton produced in foreign countries.

In the dairy industry, the dominant change is more specialization in milk production. Coupled with changes in production are changes in market outlets and in the methods used in distribution. These developments point toward more changes in market power relationships in the dairy industry in the future.

Production of U. S. fats and oils more than doubled during the past two decades and the Nation became a net exporter instead of a net importer. By the mid-sixties, U. S. production accounted for more than one-fourth of the world's supply of fats and oils.

Trends in the consumption of fruits and vegetables show a preference for processed foods over fresh. Marketers of fresh fruits and vegetables have not been able to increase marketing efficiency as rapidly as have processors. Therefore, prices for

processed fruits and vegetables have increased less than prices for the fresh.

Grain marketing has changed as a result of larger farm production units, technological advances in harvesting, improved transportation, changes in marketing channels to increase efficiency, Government programs, and changing demands of grain consumers. Technological advances in farming and farming methods have brought forth increased output per man-hour, increased production, and a decrease in the number of farms.

Rapid and significant shifts are taking place in livestock production feeding, slaughtering, transportation and processing. The forces that cause change have many dimensions and forms--technological advances, organization and management, among others. Past changes hold important lessons for assessing future forces of change. The overall prospect is for more efficient means of production and marketing.

The sweetener most widely used in the U. S. is sugar but as its price has risen relative to that of other sweeteners plus the emergence of the dietary factor some of its position in the market has been taken by corn and noncaloric sweeteners. The principal noncaloric sweeteners are chemical products: saccharin, cyclamate, and blends of these products.

The marketing of poultry and eggs has undergone rapid and substantial changes since World War II. For all of the major items--shell eggs, broilers and turkeys--farm-retail spreads have declined or remained stable even though wage rates and other factor prices have risen.

In the peanut industry, the development of mechanized harvesting and drying techniques has had a major impact on the peanut marketing system. More efficient movement of peanuts from farm to market has resulted in a significant improvement in the quality of this product available for consumption.

The form in which tobacco is consumed has changed considerably over the past 30 years. In 1952, filter tip cigarettes represented less than two percent of the total output of cigarettes. By 1965, filter tip production had increased to over 60 percent of total output. The general trend has been a shift from cigars, smoking tobacco, and snuff to cigarettes. Per capita total consumption in all forms has remained fairly stable for the past 20 years.

The National Commission on Food Marketing issued 10 technical studies along with 12 supplements pertaining to the food marketing system. Four of the reports dealt directly with commodity groups--livestock and meat, poultry and eggs, dairy, and fruits and vegetables. The remaining reports were directed to specific operations and functions within the food marketing

system--grocery manufacturing, food retailing, food manufacturing, farm-retail price spreads, and special studies in food marketing.

The technical reports present information on the changing structure, especially on number of firms, size, and growing concentration of the various parts of the food industry--with firms highly integrated and/or highly diversified in product lines, both food and nonfood products. The reports also document the growing importance of various forms of nonprice competition in the food industries--product differentiation, more advertising and promotion, more barriers to entry of new firms. Several of the reports highlighted projected changes and important implications while others reported for the most part past trends and statistics.

The staff of the Marketing Economics Division gave advice and counseled with staff members of the National Commission on Food Marketing. The counseling involved such action as advising on questionnaire development and methodological approaches in generating the data. In addition to the role of counseling and advising, MED conducted several studies for the Commission as well as providing substantial information from data previously collected in carrying out its research program. Staff members of the Marketing Economics Division have carefully reviewed these technical reports and analyzed them from the standpoint of the implications they might have to the Division's research programs. A large job remains in further study and analyses of the data accumulated by the Commission as there was little time for the Commission to fully analyze and interpret their meaning and significance.

As a step toward implementation of the recommendations for a National Program of Research for Agriculture made jointly by the Association of State Universities and Land Grant Colleges and the USDA, a section has been added to each of the Areas in this report. It comprises a list of the related publications of the State Agricultural Experiment Stations in addition to those heretofore reported covering the results of USDA and cooperative research. In future years, it is anticipated that information will be available to permit reporting of achievements resulting from State research in a format comparable to the present reporting of the USDA and cooperative research.





## AREA I

### ORGANIZATION AND PERFORMANCE OF MARKETS

Problem: Economic research in agricultural marketing furnishes information which serves as a basis for developing a more efficient system of marketing farm products from the producer to the consumer providing equitable returns for both farmers and marketing agencies. A continuous program of research is required because of the dynamics of marketing. With the changing nature and structure of agriculture, the capacity to adjust and cope with the dynamics of modern marketing is required increasingly of producers and distributors. Without a continual flow of objective information based on research upon which to make intelligent decisions in adjusting to change, the efficiency of the marketing system can be greatly impaired resulting in higher costs of moving the Nation's output of food and fiber from the farm to the consumer. Not only are structural changes occurring but likewise changes in institutions are taking place along with the redirection of public policies and programs shifting the economic environment in which all concerned with marketing must perform and operate.

Historically, private enterprise has had the responsibility for seeking out and developing efficient methods of production, processing, and distributing food. Government provides services and establishes rules whereby the competitive system can operate to the benefit of the public as well as to the food industry. In this connection, marketing economics research provides a service of collecting and analyzing information furnishing in an objective manner a form of market intelligence. In turn, private enterprise uses the intelligence furnished to better process and distribute the products of the farm. At the same time, the research helps to maintain a viable marketing system by making it more competitive and assuring a greater degree of self-regulation.

Comprehensive market information is developed in such areas as changes in the structure of the market and resulting impact on producers, processors, and distributors; farm retail-spreads and related measures of market performance; competition and pricing and the degree to which the marketing system effectively and equitably allocates payment for services performed; market power and effect of concentration, mergers, and acquisitions in diminishing or increasing bargaining opportunities between buyers and sellers; the introduction of new products and their impact on the structure of the industry; effects of changing transportation rates on the location of processing firms as well as producers of raw products.

Information obtained through research on the subject areas enumerated above furnishes a basis and framework of reference for producers, handlers, and distributors in keeping better informed and thereby making more knowledgeable operating decisions as well as planning for the future.

Also, research findings furnish guidelines for public policy decisions as well as concepts for new legislation relating to the distribution of farm products. Economic research has been a keystone on which public policy decisions have been made in promulgating regulations as provided for in legislation.

#### USDA AND COOPERATIVE PROGRAMS

The Department has a continuing long-term program of economic research providing information which is utilized as a basis for increasing the efficiency of the marketing system as well as assuring equity of returns among producers, handlers and distributors. The program of research covers both functional and commodity problems that are regional or national in scope. The program includes basic and applied research concerning itself with short-term service-type work as well as long-term research problems.

Research studies are often conducted jointly with state agricultural experiment stations, with processors and distributors of agricultural products, transportation agencies, and agriculturally-oriented trade groups. Financial contributions to the Division's research efforts are frequently made which permit a broadening and strengthening of the total research effort.

The research program and related program activities are conducted from headquarters in Washington, D. C. A limited number of field stations are located throughout the United States, a major part of them being at land-grant institutions. Field station personnel perform a special service by keeping the Division alerted and informed on emerging problems in marketing as well as conducting joint research projects with station personnel. The scientific effort devoted to research in the area of organization and performance of markets amounted to approximately 84 professional man-years.

#### PROGRAM OF STATE EXPERIMENT STATIONS

##### A. Market Institutions and Market Power

A total of 103 scientist man-years is devoted to this area of research.

##### B. Prices, Margins and Costs

A total of 85 scientist man-years is devoted to this area of research.

##### C. Location and Interregional Competition

A total of 29 scientist man-years is devoted to this area of research.

## PROGRESS--USDA AND COOPERATIVE PROGRAMS

### A. Market Institutions and Market Power

Changes in the structure of marketing agricultural products directly affect the bargaining strength of buyers and sellers. In turn, these changes have a direct bearing on marketing practices, services and prices, and ultimately on producers, marketing firms, and consumers. The number, sizes and types of firms, and the potential ease of entry into the industry by new firms affects the competitive environment in which each operates.

There is a tendency for business in the fields of the food industry to become more concentrated. An exception to this general trend is in the area of meatpacking where concentration has decreased. In neither food processing nor in distribution do economies of operation resulting from large size require substantial concentration in national markets.

Concentration of purchasing power by retailers in the food industry is especially significant. Today market power has been transferred from food processors and manufacturers to retailers. It is anticipated that developments in the industry are likely to further enhance the position of retailers. The source of the retailer's market power is through his regular contact with consumers. The retailer controls the products he buys and those he stocks for consumers to purchase. In effect, he is the buying agent for a large number of consumers. Because of the great output by the agricultural industry and food processing firms, an abundance of products places the retailer in a strong bargaining position.

Concentration has increased at a fast pace since 1950 in the food manufacturing industry. Concentration of both value added and assets increased about 1 percent per year. Moreover, concentration of profits has increased even faster. The increase in concentration is primarily a result of mergers and acquisitions by large firms of important independent manufacturers. The immediate action of the acquiring firm is to enlarge advertising outlays for new products. This action further tends to seal off new competition.

Unorganized farmers have little or no positive market power. In turn, they must depend upon competition among the buyers of their products to obtain the value that market conditions justify. When raw farm products are sold to buyers in local market who are few in number, there is always danger that competition may not be sufficient and thus not effective in achieving a fair return to the producer.

Selected studies are reported upon relating to changes in market institutions and market power. A brief summary of some of the more important findings is given.

### Soybeans

Brokers and others close to futures trading activity contend that out of the three markets--soybean, soybean oil, and soybean meal--the soybean market has been the most favorable one in which to trade in recent years. On the other hand, trading has been difficult in soybean oil and meal markets. An examination of the changes in the level of concentrations of open interest for each of the commodities appears to provide a partial answer. The soybean market has shown a decline in concentration since 1958 and is the least concentrated of the three markets today. Concentration of open interest declined from 22-29 percent in the 1958 crop year to 9-15 percent in 1964. In contrast, concentration in the soybean oil market increased from 5-15 percent to 15-41 percent and for soybean meal from 16-24 percent to 20-48 percent for comparable periods.

### Poultry and Eggs

Major marketing channels for poultry and egg products have become more direct from the processor to the retailer, bypassing the wholesaler-distributor agency. Improvements in plant operating efficiency, fewer and larger producing units and input supplying and marketing firms,



improved quality, higher density of production, and greater coordination of various functions have also helped reduce costs. A continuation of current trends is indicated for the future. As a result of an even higher degree of coordination of poultry production and marketing functions, there is likely to be increased price stability, the production of standardized products for specific markets, a further lowering of costs, and growing importance of multi-plant and multi-function firms. Realization of economies of scale and better utilization of plant capacity will further reduce processing costs and result in larger-sized units and fewer plants. Production density will be increased further resulting in reduced assembly costs.

Many retailers have delegated grading and cartoning functions for eggs to others, such as assembler-distributors. The choice of procurement systems is related to local surplus-deficit conditions, area producing and marketing structures, and overall retail firm policies. Problems exist relative to the certainty of regular purchases from suppliers by retailers, the disposal of surplus eggs by suppliers or retailers, and the ability to obtain required supplies of various grades and sizes.

In studies of the Georgia egg industry, vertically integrated production and marketing operations appear to have many advantages over non-integrated operations. Integrated firms were able to reduce seasonality of supplies and lower production and marketing costs. Net returns to producers in various segments of the marketing system were not significantly different, except in the larger owner-integrated operations where the return was 2 to 3 cents more per dozen.

The role of the poultry producer has changed materially with the shift to a highly-integrated industry structure. One indication has been the expansion of contract production. For example, more turkeys are being grown under risk-sharing contracts, primarily with feed firms. More firms are producing turkeys on company-owned or leased farms. About 20-25 percent of turkey producers secure credit from banks and other similar sources. Production financed by feed companies and other amounts to 45 percent. Risk-sharing production is 25 percent and company production 10-15 percent. These percentages overlap to some extent and are not completely additive.

Contract grower returns were compared with those of an independent grower for turkeys and eggs. Changes in the price paid for feed and changes in the price received for the turkeys or eggs had a much more pronounced effect on returns to the independent than the contract grower.

Over time, the contracts for broilers, turkeys, and eggs have tended to guarantee the grower a minimum fixed return and there is less opportunity now for the contract grower to share in increased profits as product prices increase or the price of inputs decreases. Contracts now guarantee a return that will vary in a relatively narrow range for a given contract although there may be a wide variation between grower returns under different contracts.

While poultry meat has long been used in the production of soups and canned meat, pies, dinners, and many new products have increased in importance in recent years. Currently, cooked parts, dinners, rolls, canned boned meat, and gourmet and specialty items are the major further-processed products made from young chicken meat. For mature chicken meat, soups, canned boned meat, pies, and canned whole chicken are the major end-products. Turkey meat is used mainly in rolls, roasts, dinners, pies, and sliced and prepared meats. Large plants produce the bulk of most items except for specialty and gourmet items, prepared meats, and foreign food preparations. Eight percent of the plants handle over 70 percent of the poultry meat used in further-processing. Economies of scale exist in further-processing and may cause plant numbers to eventually decline.

### Livestock

Between World War I and II, meatpacking plants in the livestock producing areas became increasingly important. In the mid-fifties many large, full-line plants located at terminal markets were closed as slaughter shifted even nearer to livestock production areas.

Changing size characteristics of firms in the slaughter industry also have an impact on livestock marketing. Data for the federally inspected sector of the industry show an increasing number of firms with decreasing variation in size. Concentration of slaughter in the hands of a few large firms has declined. In 1950, the 4 largest firms slaughtered 51 percent of the federally inspected production. By 1964, their share had dropped to 33 percent.

The vast terminal markets that once handled nearly every livestock sale now operate at part capacity in many cases and have disappeared altogether in others. Packers buy most livestock directly from farmers and move them to specialized, highly efficient plants nearby. The meatpacking industry has increasingly been characterized by fast-growing, highly specialized firms, small by the standards of the largest packers who once dominated the industry (and have seen their share of the livestock slaughter gradually but steadily diminish in recent years). These packers typically use Federal grade and other specifications to sell a highly uniform product to very large retail firms in great quantity.

Livestock marketing today appears to be nearing a shift to substantially more objective methods of quality appraisal. A steady trend toward selling livestock on the basis of carcass weight and quality has been observed for several years. The development of a widely accepted and used system of selling slaughter livestock on a carcass basis may be the key to the development of an advanced livestock marketing system that will not only take the guesswork out of buying and selling slaughter livestock but will reduce transportation cost and increase competition at the same time.

## Dairy Products

The number of fluid milk bottling plants (excluding producer-dealers) in the United States declined 53 percent between 1948 and January 1965. The number of plants declined at a slightly faster rate in 82 Federal order market areas (excluding New York-New Jersey). Between 1950 and 1964, the number of pool handlers in these markets declined 57 percent. Most of the plants that went out of business were small. Some small plants increased their volume by installing new equipment or by fuller utilization of capacity. The following distribution of plants by annual volume shows that plants bottling less than 5 million quarts of milk a year declined from 93 percent of the total in 1950 to 64 percent in 1964:

<u>Annual volume per plant</u> <u>Million quarts</u>	<u>1950</u> <u>Percent</u>	<u>1964</u> <u>Percent</u>
Under 1	72	28
1 - 4.9	21	36
5 - 9.9	4	13
10 or more	<u>3</u>	<u>23</u>
Total	100	100

The number of plants manufacturing dairy products has fallen somewhat less rapidly than fluid milk plants. Between 1944 and 1961, this type declined 37 percent. (These are the only years for which data on the total number of plants manufacturing dairy products are available.) Between 1944 and 1964, the number of plants making butter, cheese, evaporated milk, and ice cream declined more than half. Plants producing creamed cottage cheese and nonfat dry milk declined somewhat less as production of these products increased more rapidly than many others.

The number of large plants manufacturing dairy products has increased. In 1944, 122 plants produced at least 2 million pounds of butter per year. In 1963, 219 plants were in this size category. During this period, the number of smaller plants declined from about 3,900 to about 1,100. The smaller plants accounted for 74 percent of the butter output in 1944 and 38 percent in 1961.

The direction of change in American cheese plants generally was similar to that of manufacturing other dairy products. In 1944, 155 plants were producing 1 million pounds of cheese or more per year. By 1963, there were only 431 such large plants. At the same time, the number of small plants declined from about 2,000 to 600. The small plants accounted for 70 percent of the production in 1944 and 38 percent in 1961.

## Molasses and Noncaloric Sweeteners

A substantial part of the industrial molasses consumed in the United States is imported. The source of these imports has shifted greatly since 1960 when imports from Cuba ceased. The relative importance of various



domestic sources of supply also has changed, following amendments to the Sugar Act in 1956 and later years.

Important shifts also have occurred in the relative importance of various uses made of industrial molasses. Use of industrial molasses for livestock feed has expanded greatly and now constitutes the largest market for the product.

The rapid increase in the consumption of noncaloric sweeteners--saccharin and cyclamate--since 1962 has created new competitive relationships in the sweetener industry, new opportunities and new problems, for both producers and users of sugar and other sweeteners.

The available evidence indicates that only about one-fourth to one-third of the noncaloric sweeteners consumed represented substitution for sugar; the remainder has served to enlarge the overall market for sweeteners. The percentage of noncaloric sweeteners used as replacement for sugar is likely to increase as the total usage of noncaloric sweeteners increases.

During the past year a survey has been made of producers and users of noncaloric sweeteners. The rapid growth in the consumption of soft drinks since 1950 shows no signs of slackening, and the likelihood prevails of some further increase in the share of noncaloric sweeteners in the soft drink market. A somewhat slower growth in the use of noncaloric sweeteners in other food industries appears probable.

### Wool

Major changes in the structure, location, and practices of the textile industry have had a definite impact on the marketing requirements of domestic grease wool; but lack of information relating to these recent significant changes has hindered efforts by growers and marketing agencies to properly adjust their marketing practices. As a result, the cost of marketing raw wool often amounts to as much as 30 percent of the producer's income from wool. An evaluation of the entire wool marketing system (producers, warehouses, local pools, and textile firms) is near completion. Recommendations are being developed to improve the system, along with suggested means of implementation. The American Farm Bureau Federation and National Wool Marketing Corporation are cooperating in the study.

### Discount Houses

A comparison of the operations of discount food stores and conventional supermarkets in 10 Standard Metropolitan Statistical Areas revealed that significant differences existed between them. The discounters had higher average weekly sales, but were open fewer hours during the week. Despite a substantial difference in average weekly sales, the departmental distribution of sales was not different. The discounter's gross margins on selling price were lower as were "other" costs (all costs other than labor). The discounter's labor costs as a percentage of sales were also

significantly lower although wage rates were not significantly different from conventional retailers. The discounters had the largest number of part-time and full-time employees, but their sales per man-hour and sales per full-time equivalent employee were higher than in conventional food stores. The discounters also had lower prices and a smaller variety of merchandise. Trade estimates indicate that in 1965 discount food stores accounted for almost 11 percent of grocery store sales.

#### B. Prices, Margins, and Costs

It is not possible to ascertain whether the price spread for a particular product is economically justified by examining only the amount of the spread. Even breaking price spreads into their component parts is only a limited step toward appraising them. The National Commission on Food Marketing concluded that "Price spreads can be used as a starting point for evaluating the food industry's performance if the following questions are asked: (a) Are the functions for which marketing costs are incurred necessary ones? (b) Are the functions efficiently performed? (c) Are profits reasonable? If the answer to each case is yes, then the price spread is justified.

Farm-retail spreads have widened in the past year. The rising cost of labor and other inputs that marketing firms purchase have contributed materially to the widening spread. Continuing evidence substantiates that a low correlation exists between short-run changes and farm-retail spreads for individual products and the actual costs of performing marketing services.

Rising prices of food during the past year, particularly pork and milk, have brought an avalanche of requests as to the reasons underlying the upward movement. Higher prices at the farm level for many food products along with increased marketing charges have contributed to higher prices paid by consumers. Much staff time was utilized in developing special information on spreads and prices and relaying this to persons and agencies requesting it. The spread between the retail cost and farm value of the farm food market basket was about 3 percent wider in July-September 1966 than in July-September 1965. Cost of materials, labor, and other goods and services have risen at a faster rate in recent months than previously during the 1960's; this contributed to the increase in farm-retail spreads. Improvements in efficiency have continued to offset in part the rise in these costs.

Labor cost and output estimates show that improvements in output per man-hour have limited the increase in labor cost per unit of product marketed to 9 percent since 1957-59, although labor cost per hour was up 30 percent.

Prices farmers received for the foods in the market basket averaged about 8 percent higher in the third quarter of 1966 than a year earlier. All product groups in the market basket rose.

The bill for marketing food products from farmers to consumers totaled \$52 billion in 1965, \$1 billion more than in 1964. This increase was considerably smaller than the average in recent years. Rising unit marketing charges

accounted for most of the increases as the volume of products marketed increased less than 1 percent. Marketing charges per unit of product rose mainly because of a large increase in the volume of products marketed through away-from-home eating places.

New methods were devised for deriving many of the annual marketing bill data. Also, data that have become available recently from the National Commission on Food Marketing and other sources were utilized. Series derived by the new methods were benchmarked to estimates for census years that were derived by the commodity flow method. The new marketing bill estimates were published for the first time in the Marketing and Transportation Situation in August 1966. These and related data also were published in 1966 in a report entitled The Farm Food Marketing Bill and Its Components which also includes a description and analysis of movements in the marketing bill, returns to farmers, and consumer expenditures for farm foods.

The Division is cooperating with the Office of Business Economics on the 1963 input-output study with an aim towards acquiring more detail about the inter-relationships of the food marketing sector with other sectors of the economy. We will contribute data on trade margins and channels of distribution.

The Division studied the demand for food marketing services. One study produced estimates of 0.70 for income elasticity of marketing services and -0.76 for price elasticity. The study showed that the real price of marketing services declined moderately between 1929 and 1945; however, since 1947, the real price has been quite stable. This finding indicates that supply of services has expanded at about the same rate as demand.

Data from both the National Commission on Food Marketing and the Department's Case Study of Price Merchandising and Food Retailing document the increased emphasis upon variable price merchandising. Variable price merchandising is the manipulation of prices, both upward and downward, to draw attention to market offerings of the retailing firm and to differentiate the firm from its competitors. As a result of this practice, there is little short-run relationship between changes in prices at the supplier level and changes in price at retail. Variable price merchandising with its emphasis upon store differentiation also discourages any classical forms of price leadership. While some evidence of price followship among firms was found, there was little systematic tendency for one firm or firms to be followed by others.

Findings from research studies on commodities contribute to the aggregate studies reported above. They also help answer the many questions of producers, marketing groups, and consumers on problems specific to particular commodities. A summary of some of these findings follows:

#### Poultry and Eggs

Analyses of the costs of hatching chicks and poults and of the possible economies of scale provide guidelines for management to use in increasing the efficiency of hatchery operations. In-hatchery costs per salable pullet



hatched ranged from 9.1 to 25.9 cents in the 24 surveyed egg-type chick hatcheries. Wide variations were found in utilization of labor, incubator capacity, length of hatching season, rate of hatchability and managerial efficiency. In the six model hatcheries synthesized in this study (1 to 10 million eggs a year at full capacity), the in-plant costs per salable pullet ranged from 4.8 to 23.0 cents depending on the hatchery size and capacity utilized.

Farm-to-retail price spreads for fowl are 5-8 cents wider than on frying chickens. Further-processed poultry products are generally priced by plants on an administered pricing basis and retail markups are generally 20-25 percent.

The per pound cost of assembling live turkey increases with the rise in firm size and decreases with an increase in density (pounds available per square mile). Excluding costs for shrinkage, costs for a firm handling less than 5 million pounds per year ranges from just over 0.20 cent per pound for high density to about 0.35 cent per pound for low density. The costs of a firm handling 70 million pound ranges, respectively, from 0.25 cent per pound with high density to almost 0.5 per pound with low density. Labor costs account for over 60 percent of total costs of assembly.

Egg grading and packing plants in 1970 will be operating at very nearly the same overall level of costs per dozen eggs as at present, but costs may be somewhat higher by 1975. The relationships between costs of firms of varying sizes may change somewhat, economies of scale becoming a more important factor than in the past.

Structural changes in egg markets have created a need for ways to improve the present pricing system or find workable alternatives to assure fair prices to buyers and sellers at various trading levels. Main problems in using base price quotations are: (1) the tendency of many firms to use the base without playing an active role in determining it; (2) the lack of agreement between base-price-producing markets and outlying areas on supply and demand conditions and values; (3) thinness of trading on mercantile exchanges; and, (4) the failure of base prices to represent the kinds of eggs moving in greatest volume in trade channels. However, the base price quotation system is widely used and accepted in the trade and is an efficient means of arriving at values. Thus, possible improvements of alternative systems should preserve these desirable features while correcting existing deficiencies.

Despite the increased importance of egg quality-control programs, variation in quality of individual producers remains substantial. This suggests the need for stricter enforcement of programs or their adjustment to more appropriate standards. Egg quality averages substantially lower for very small flocks than for medium-sized and large flocks. Along with quality control a great need is towards increasing the number of cases per lot. This saving in "down time" from small lots will substantially increase the number of cases processed per hour and thereby decrease the cost of each dozen of eggs packed.

## Livestock

A survey of 20 representative meatpackers in most major livestock centers showed delivery costs averaged 89.3 cents per hundredweight for 150-miles haul in August and 83.9 cents per hundredweight for 220-miles haul in February for average loads. These figures represent averages for nearly 3½ million pounds of meat. For individual firms, delivery costs for all meats averaged from as low as 11 cents per hundredweight to as high as \$3.97 per hundredweight. Costs were higher for smaller average loads and shorter average hauls, but were also quite variable among firms for similar loads and mileages. Driver cost amounted to about two-fifths to one-half of delivery cost; and driver man-hours showed wide variation among routes of similar loads and mileage. Many packers could reduce delivery costs up to 50 percent with estimated savings in the range from 70 cents to \$1.00 per hundredweight.

The adequacy of price information on livestock and meat in a changing market environment is a continuing question. Price information on dressed beef available to users in the South reflects prices from non-Southern markets and does not appear to be adequate for decision-making by meat handling and livestock producing firms in the South. Available price information is generally not adequate for much of the relatively light beef carcasses produced in Texas and Oklahoma. In addition, available price information for much of the heavier beef is based on pricing trends in more distant markets which often is not representative of supply and demand conditions in the Southern Plains. The availability of current and accurate price information for designated major markets in Texas and Oklahoma can contribute to continued growth, orderly marketing and a viably competitive livestock and meat industry in the Southern Plains.

## Dairy Products

With excess capacity in the industry, what are alternatives available to milk manufacturing plants to utilize all facilities without increasing costs? The economic feasibility of operating a flexible dairy manufacturing plant with facilities for producing either butter or cheese and their associated by-products appears questionable, based on a study made of Minnesota plants. This conclusion is based on net returns for model dairy plant. During 1959-64, it would have been more profitable to process milk in the standard butter-powder plant most of the time rather than in the flexible plant.

The annual average daily receipts of whole milk in Minnesota dairy manufacturing plants is about 75 percent of the peak day receipts. Milk dryers are more fully utilized during a 24-hour period than butter churns or cheese vats. In very large butter-powder plants, dryers are used about 20 hours per day while churns are used approximately 12 hours per day. As plant size increases the average number of products produced increases. The small plants produced only one product per plant while the very large plants reported an average of 3.2 products manufactured.



## Tobacco

The institutional framework of the tobacco auction warehouse system has remained relatively stable for a number of years. This institutional stability in the auction warehouse segment of the industry has made it difficult in some cases to minimize cost by planning the optimum size operation. An analysis of burley auction warehouses in Kentucky revealed wide variations in floor labor required per thousand pounds of tobacco sold. Warehouses selling only 1,000,000 pounds of tobacco per season required approximately 20 hours of floor labor per thousand pounds of tobacco sold, whereas warehouses selling 3,000,000 pounds of tobacco required slightly less than 10 hours of floor labor per thousand pounds. The Canadian tobacco auction system is able to handle an equivalent quantity of tobacco for less than one-third of the costs of a typical auction warehouse in the United States.

## Cotton

The farm value of lint cotton has decreased recently, while the retail prices of cotton items have continued upward. From the mid-1950's through 1965 the farm value varied from 30 to 34 cents a pound. The estimated value of the 1965-66 crop is 28.5 cents a pound. On the other hand, the average composite retail cost of 25 representative cotton apparel and household products, expressed in terms of 1 pound of cotton, climbed from \$2.07 in 1955 to \$2.19 in 1961, where it leveled off until this year. The 1966 average monthly cost of these items is experiencing another upward trend. The net result of these increases in average retail cost and the decreases in farm value of cotton has been a widening of the farm-retail spread and a decrease in the farmer's share of the consumer's cotton dollar. The farm-retail spread in the second quarter of 1966 was at an all-time high of \$1.92. The farmer's share decreased from 14 percent in 1965 to 13 percent during early 1966.

A cost study of storing and handling cotton in the Cotton Belt was completed during 1964-65. Data were collected from a randomly selected sample of plants accounting for about 30 percent of the total CCC-approved capacity. Standardized total costs and out-of-pocket costs were developed for principal services. Replacement costs also were estimated and used in projecting long-run and short-run competitive rates. The total cost for receiving cotton for storage averaged 72.1 cents per bale. For all plants the total cost of storage on an insured basis was 25.7 cents per bale per month. Break-out (removal of cotton from storage preparatory to shipment) was performed at an average cost of 58.4 cents per bale. Shipping costs were 40.9 cents per bale, on the average. At plants operating compress machinery, the total average cost per bale was \$1.25 for standard density compression and \$1.83 for high density compression. Estimates on the basis of replacement costs indicated a long-run competitive rate for insured storage in 1966-67 of 31.1 cents per bale per month. The corresponding short-run rate was 25.0 cents.

Findings from a study of model cotton gin plants of various sizes for three specific geographic areas indicate that unit costs of production in cotton gins, when operated at similar levels of operating efficiency, will decline with increases in plant size up to about 24-bale-per-hour rated capacity level. However, a slight drop in operating efficiency at any given capacity level compared to that at the next lower level will show up in lower operating cost with a smaller plant. This points up the extreme importance of planning gin plant size, insofar as possible, for operation at peak efficiency throughout the greater part of the ginning season. A comprehensive study of ginning costs is being initiated in the High Plains area of West Texas.

Cotton research evidence continues to point up the fact that grade and staple length do not provide a satisfactory basis for selecting, processing, and pricing. Changes occurring in the textile industry indicate that foreign matter as a grade factor is becoming less significant as a quality factor and that the presence of more trash may be associated with more desirable fiber properties. For more effective pricing, greater attention must be given to properties other than grade factors. This is borne out by cooperative work done in South Carolina last year. Growers in that State received an average of 29.7 cents per pound, being exceeded only by two States growing Acala cottons. A reduction of 50 percent in loan entries was associated with better preservation of length and length distribution, favorable micronaire and marginal fiber strength values.

More than one-half billion pounds of cotton mill waste entered domestic marketing channels in 1965. Most waste originated in domestic cotton mills with imports accounting for less than 100 million pounds. The largest outlets are the bedding, automotive, furniture, and paper industries. Use of mill waste is expected to continue increasing as technology expands outlets. If the relative importance of in-mill use of waste increases as expected, then the trend toward increased use of synthetic fibers by the textile industry will result in cotton waste being correspondingly replaced by synthetics in the waste market.

### Grains and Feeds

Major emphasis on grain products price spreads during the past year has been on assisting the National Commission on Food Marketing staff in planning and conducting an analysis of the milling and baking industries. Data sources developed during this work are being consulted in an effort to obtain similar information on a continuing basis. In addition, a new retail price reporting system for bread is being tested. The marketing spread for a 1-pound loaf of white bread was 18.8 cents in August 1966, 1.4 cents above the level of a year earlier. The farm value of ingredients showed a similar rise from 3.4 to 4.0 cents, the sharpest increase since 1947 to the highest level since January 1948. Data from several sources are being analyzed with the objective of revising the series on these spreads, and also of improving the source of information used in measuring the breakdown of the farm-retail spread among the various segments in the marketing process.

A national study was completed which examined the costs of storing and handling grain in commercial elevators for 1964-65. Four types of cost were analyzed: (1) out-of-pocket costs, which contained no allowance for interest on investment or depreciation; (2) total book costs, which included the firms' own figures for depreciation and interest on investment; (3) short-term competitive rates reflecting the out-of-pocket cost of the marginal firms; and (4) long-term competitive rates based on total costs including depreciation and interest on the replacement value of capital assets. Country elevator records showed book costs for storing and handling grain by the most common method averaged 10.4 cents per bushel and ranged from 9.2 cents in the South and East to 12.0 cents in the Great Lakes area. This cost included 1 year's storage plus receiving by truck and shipping by rail. Short-run competitive rates for the combined storage and handling function averaged 8.0 cents per bushel. Long-run competitive rates averaged 13.5 cents per bushel. At inland and port terminals, the combined book cost for receiving, storing, and shipping averaged 9.0 cents and 9.3 cents per bushel, respectively. Short-run competitive rates were 7.0 cents per bushel. Long-run competitive rates averaged 12.0 cents at inland and 13.5 cents per bushel at port terminals. Storage cost alone (as shown on the warehouse books) averaged 5.4, 5.5, and 7.2 cents per bushel at country, inland, and port terminals.

Economic and technological changes in the mixed feeds industry during recent years have been quite pronounced and widespread. Feed manufacturing operation is one of the greatest areas of change. Research had made use of economic-engineering models to show management where efficiencies are possible. Four models, ranging in size from 80 tons to 260 tons per 8-hour day, are being analyzed. Labor requirements range from 0.80 man-hours per ton to 0.53 man-hours per ton. The impact of product specialization is receiving special attention as a factor in obtaining a low-cost and high efficiency plant operation.

Substantial economies to scale exist in the manufacturing of pelleted broiler feeds over a range in mill capacities from 20 to 348 tons a day, but the relatively high cost of bulk feed distribution tends to offset these economies except in situations where broiler production is extremely dense and concentrated about the mill site.

Investment for the seven model mills for manufacturing layer feed, which range in capacity from 65 to 800 tons a shift (8 hours), increases from approximately \$200,000 to \$1,167,000. Preliminary indications are that fairly substantial economies probably exist over a portion of this range in mill sizes.

Mash poultry feed in bulk form for layers can be manufactured for approximately \$2.44 a ton, with operations at 415 tons capacity for two full shifts a day. Bagging in 50 pound paper adds approximately \$4.00 a ton.

Present alfalfa hay grades do not reflect some quality attributes. Thus efficient price determination is difficult. A study in cooperation with the Nevada Agricultural Experiment Station involved developing experimental alfalfa grades which accurately reflect quality factors. The experimental



grades retain most of the present U. S. hay standards but add criteria and test methods for protein and moisture. A market test of these grades showed that the experimental grades provided sufficient information for their use in price determination; and they will be used with increasing frequency, either as amended U. S. hay standards or as informal agreements among the trade.

### C. Location and Interregional Competition

Changes occurring in the technology of producing and processing agricultural products may have an impact on the comparative advantage of one producing area or processing industry over another. Changes in transportation rates, costs, and services may affect the competitive position of some areas and industries more than it does others. As a result, new firms may be called for in one area while those in other areas may seek alternative opportunities.

#### Transportation

Railroads have been making rapid strides in adopting new technology and new ratemaking principles. These changes have important implications for future growth and scale of production and marketing facilities at various locations. However, these changes are not uniformly affecting rail freight rates for all products. For example, the 1965 rail freight rate index (1957-59 = 100) for cotton stood at 98 while that for wheat was only 83. Neither were the changes for specific commodities uniformly distributed over all areas. Uncertainty of future changes in these rates may be having a dampening effect on the optimum pattern of investments in production and marketing facilities at locations experiencing relative improvements in competitive position.

Intermodal competition for whole-grain traffic is continuing. Railroads are now attempting to adjust rates and services so as to hold their volume and in many instances are making determined efforts to regain traffic lost to barges and trucks. The numerous studies started over the past decade or so on grain distribution among modes have been completed. The basic objective of these studies was to alert the grain transportation industry to the powerful competitive forces developing in this sector, and this objective has been achieved. There has been a great demand for information on intermodal distribution of traffic, because no transportation agency having a large financial stake in its grain traffic can afford to overlook conditions attending this traffic.

Many of the new rates proposed by the railroads are titled "cost-oriented" rates, yet the relationships among some of these rates and apparent costs to the railroads of providing the services are not logically consistent. A preliminary test of the hypothesis that the rates are really oriented to the costs of competing carriers, rather than to the costs of the proponent railroads, indicated that the hypothesis merited further testing.

Airlines also have been making great strides in their ability to compete for agricultural traffic. For example, volume of fresh fruits and vegetables shipped by air increased between 4 and 5 times from 1961 to 1964-65, and similar increases are expected by the airlines between 1965 and 1970. This increase in traffic was accompanied by rate decreases from about 20 cents per ton mile in 1961 to about 12 cents in 1965. These rates are still considerably above rail rates, but future reductions in costs due to better use of new improved equipment and other factors are expected to reduce the disparities in rates.

For-hire motor carriers operating under the agricultural exemption provisions furnish transportation services for much of agriculture's need. A few commodities--eggs, poultry, and livestock, for example--are moved almost entirely by such firms. Reasonable rates and adequate services for these commodity industries thus rely upon intramodal competition. Studies of the exempt trucking sector have examined the nature of the equipment used; the degree of stability in this sector; size of fleets operated; and other factors. It was estimated that exempt motor-carrier firms operated slightly more than 30,000 trucks in interstate hauls in 1963. This was only 4.4 percent of all for-hire trucks in the United States. However, these exempt trucks were operated more miles per year but also with fewer loaded backhauls than were the regulated trucks. Direct measures of the state of intramodal competition in the exempt sector have not as yet been made except for isolated areas.

Transportation rate functions were fitted to data from shipments of cattle hauled by truck and rail both within and between the western States. All functions were linear; that is, nearly all of the variation found in rates for a given type of transportation was explained by the distance hauled. Significant differences in truck rates were found in most between-State comparisons. There was no particular geographic pattern to the between-State relationships. Differences or similarities in rates between States can be explained by differences in truck operating costs, and degree of effectiveness of competition in the transportation of cattle.

It was found that intrastate truck rates for hauling cattle were significantly lower than interstate truck or rail rates for distance up to about 135 miles. Between 135 miles and 290 miles, interstate truck rates were lowest. For distance over 290 miles, rates for hauling feeder cattle by rail were lowest, and for all distance over 390 miles rail rates for slaughter cattle were lower than interstate truck rates. Less than 15 percent of the cattle in the west are shipped by rail and the percentage is continuing to decline. The choice between truck and rail by shippers of cattle is influenced not only by the transportation rate, but also by the speed and convenience of service. Trucks not only offer portal-to-portal service, but averaged 60 to 140 percent greater speed in-transit than regularly scheduled freight trains.

Location and interregional competition research includes other aspects than transportation. A number of research studies were conducted on animal products, grains, and other important commodity areas. A brief summary of some of the findings pertaining to selected commodities follows:

### Eggs

As the historical "egg basket" of the Nation, the Midwest has experienced intensified competition in the last decade from growing egg industries in the south and west. For the Midwest to maintain its present position, extensive changes in the size and location of units, in the input-supplying industries, and in marketing practices and channels are needed. More attention must be paid to egg quality, production density, flock sizes, and increased coordination of producing, input-supplying, and marketing functions. If relative returns to producers can be raised, Midwestern farmers might find egg production a better alternative than at present, and others might be more willing to support the investments needed to update the industry in that region.

In 1964-65, dealers buying prices for fluid milk increased an average of 18.2 cents per 100 pounds with each 100-mile increase in distance from Eau Claire, Wisconsin. Areas of lowest and highest prices tended to shrink in size as compared with 1960-61. In addition to distance from major milk supply areas, price differences were also due to (1) Federal, state, and local regulations, (2) supply and demand situations in local markets, and (3) bargaining positions of producers and distributors.

### Sugar

Recent increases in the production of beet sugar, together with the growing importance of both corn and noncaloric sweeteners have intensified certain problems of importance to various groups of producers and users. The shipment of larger quantities of beet sugar for the long distances involved in finding a market have increased marketing costs and tended to lower the returns of processors and growers per pound of sugar or ton of beets marketed below what might otherwise have been obtained. The more rapid increase in the use of competing sweeteners than of sugar has reduced the growth of sugar consumption in the United States and created problems for sweetener users.

The increased proportion of beet sugar in total sugar consumption in the United States has resulted in a shift in the geographic pattern of refined sugar prices. Most of the beet sugar produced in the United States is manufactured in the western part of the country, and increasingly large quantities have been shipped to Chicago and eastern cities in recent years. This has been accompanied by price concessions and a general lowering of prices in the Chicago area relative to prices in New York. Since 1950, wholesale price quotations for sugar in Chicago have declined relative to New York quotations by .87 cent per pound.

## Peanuts

Under the peanut price support program, average price support differentials per ton are established among the four major types of peanuts. Also, within each type of peanuts, support values are assigned to each of the several kernel grades used in establishing the quality of farmers' stock peanuts. A study is underway to determine the manner in which the support price mechanism affects the commercial marketing of peanuts with respect to both the quantity and quality of each type that will be demanded by commercial outlets and the competitive relationships among the different types. Work has been initiated to develop a comprehensive interregional competition analysis of the entire peanut industry.

## Grain

The grain marketing system, along with flour milling, is currently faced with problems of both expansion and contraction. Near depletion of whole grain stocks for export have left many terminal centers with relatively little business, while the Gulf Ports are constructing new facilities to handle the increased export flow. Terminals are moving closer to producers and flour mills are relocating closer to consumers. Milfeed users are also caught in this rapid shift in industry structure and location.

Research findings on the location and performance of the whole grain industry in the Northeast have been made available; a report prepared under contract by Oklahoma Agricultural Experiment Station on the structure, location, and grain flow in the Southwest is nearing completion; an analysis was completed for the 11 Western States and research is currently underway in the South; and Texas Transportation Institute, under contract with the Department and in cooperation with the 12-State Governors' Committee, is analyzing grain, oilseed, and flour transportation charges by motor carrier and barge in the North Central and Midwestern States.



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## AREA II

### DEVELOPMENT OF MARKETS

Problem: Of continuing concern in the area of development of markets is how to strengthen markets for farm products faced with a continuing rise in distribution costs and increasing competition from synthetics and substitutes for agricultural products. In attacking the problem, research in the area of the development of markets is designed to determine how best to maximize the use of farm products, keeping in mind consumer desires and returns to producers. Research on the development of markets includes economic studies of market potentials for new and improved products, particularly those originating in the Department's utilization laboratories; evaluation of merchandising and advertising programs by examining the effects on sales and returns to producers; appraisal of current and proposed public food programs along with use of food at home and in away-from-home eating places.

Research in the area of market potentials is designed to assist in efficient product development and commercialization. It seeks to establish economic and marketing guidelines for developmental research and examine the factors contributing to the success or failure of new introductions. The development of new and improved products and services to better satisfy market requirements and consumer wants has received increased emphasis in recent years as a means of strengthening markets for agricultural products.

Farm groups continue to spend at record levels for advertising, promotion, and merchandising in seeking to expand the sales of their respective farm commodities. Despite the magnitude of these expenditures by farm groups, only limited, quantitative information is available by which to appraise the role or influence of such activities on sales as well as returns to producers. Because of increasing complexity of marketing and its diverse but interrelated aspects, firms producing and distributing farm products need more information on demand creation upon which to base marketing decisions as well as improved techniques for decision making.

Public food programs serve as a bridge between agriculture and the food needs of the economically deprived. The National School Lunch, food stamp, and commodity distribution programs have helped substantially in sustaining and expanding markets for farm products and meeting nutritional needs among school children and needy persons. However, there still remain substantial unfilled food needs among the poor. Additional research efforts are needed to insure that all qualified recipients will have access to and benefit from public food programs. There is need for research which will delineate the problem of unmet food needs among the economically deprived and define the needs in terms which will permit a solution.

## USDA AND COOPERATIVE PROGRAMS

The Department has a continuing long-range program of economic research directed to strengthening markets for farm products. A substantial part of the research on the development of markets is carried out in cooperation with producer groups, trade associations, and State Departments of Agriculture. Financial contributions to different projects are often made by cooperating groups. For example, in the past year over 150 different firms concerned with the production, processing, and distribution of foods made financial contributions to a study designed to analyze and evaluate the market for food in away-from-home eating establishments.

The Department's research program on the development of markets is centered in Washington, D.C., with a small number of field stations located throughout the states. Also, economists are located at each of the four USDA utilization research and development laboratories. The scientific effort devoted to the development of markets in the past year amounted to about 28 professional man-years.

### PROGRAM OF STATE EXPERIMENT STATIONS

#### A. Products and Services

There was no scientist man-years devoted to this area of research.

#### B. Merchandising and Promotion

A total of 38 scientist man-years is devoted to this research.

#### C. Distribution Programs and Market Outlets

A total of slightly over 1 scientist man-year is devoted to this area of research.

### PROGRESS-USDA AND COOPERATIVE PROGRAMS

#### A. Products and Services

Considerable emphasis in the past year was given to markets in which farm products are meeting serious competition. An example is the market for hides and skins. The market for these important byproducts of the livestock industry is seriously threatened by synthetic substitutes, and their impact on the long-range demand for leather and leather products is being studied. Preliminary estimates indicate leather's share of the shoe-upper market, amounting to more than 80 percent in 1965, will decline to about 65 percent by 1975.

Leather products are made even more vulnerable to substitution by inefficiencies in certain marketing methods and practices. In 1965, the value of hides and skins was \$400 million at the meatpacking level, \$900 million after

tanning, and \$3.2 billion after manufacturing. Part of this wide margin between the value of raw hides and finished leather products may be due to inefficient marketing methods. An improved method of marketing has been developed wherein unhairing and pickling of the hides is done at the packing-house. A study of the economics of this method indicates that marketing costs can be reduced by \$1.20 per hide.

Fibers and grains are faced with a similar problem in certain markets. Cotton for example, is being displaced in certain uses by synthetic fibers. Markets for agricultural products in soaps, paints, and industrial alcohol have been decimated by synthetics. Starch from cereal grain in certain industrial markets is threatened by such synthetic products as carboxymethyl cellulose, polyvinyl alcohol, and polyacrylic acids.

Work was initiated in the past year to assess the impact of synthetics on markets for grain and fiber products and evaluate technical and economic factors that have contributed to market losses in certain areas. Data are being compiled on end-uses, prices, trends, market requirements, and competitive conditions in several important markets where these products are threatened by synthetic materials. Information developed will help identify and evaluate ways of strengthening the competitive position of agricultural products in industrial uses.

One market receiving special attention is that of starch from cereal grains in textile processing uses. Starch's competitive loss to synthetic chemicals over the last decade probably was most acute in fabric printing and somewhat less marked in textile finishing processes. The trend is toward such finishes as water-proofing, mildew-proofing, fire-proofing, wash-and-wear, and durable-press areas in which synthetic resins have gained prominence. Starch apparently has a solid economic advantage in textile warp sizing--the major use of starch in textile processing. Starch's use in this application will likely grow, offsetting losses in other areas, but its future as a warp size is by no means assured.

Another area receiving special attention is the economic impact of innovations in the textile industry on the market for cotton with special emphasis on the impact of man-made fibers. Innovations in man-made fibers have been identified and their market impact studied from first introduction to the present. Certain recent innovations in fiber processing and marketing also have been identified and their influence on the market for cotton studied. Further work will involve examination of innovations in dyeing and finishing textiles and the application of statistical techniques to measure the impact of innovations on the market for cotton.

Declining per capita consumption of wheat and flour products in recent years has spurred interest in product innovations in this area. A market study on frozen bakery products and doughs indicated the number of firms producing these products increased from 8 in 1961 to 26 in 1965. Prices for white frozen dough averaged 15 to 20 percent lower throughout the United States than for the baker's regular white pan bread. The outlook is for continued



steady growth in the production of frozen doughs.

Special commodity studies on safflower, Kona coffee, maple sirup, dairy products, and sweetpotatoes were continued during the year. Safflower is a relatively new oilseed crop which seems to have good possibilities for expanded production in the Northern Plains and Western States. To provide a basis for effective development of this unique oil's full potential, a study is underway to obtain comprehensive information on present and potential markets.

Substantial progress was made during the year on a study of market potentials for Kona coffee produced in Hawaii. This work is being conducted under a cooperative agreement with the University of Hawaii. A report dealing with Kona coffee's penetration of the Honolulu market and another concerned with its acceptance by consumers in Honolulu, New York, and Washington, D. C., are now being readied for publication. Results indicate that a fairly substantial proportion of consumers liked Kona ground and instant coffees as well, and in some instances better than two of the commercial coffees tested. Because of limited production capability of Kona coffee in Hawaii, only a relatively small segment of the total coffee market on the mainland is needed to assure commercial success.

Findings of research to determine acceptance of modified beverage milk in the Southeast were published. Results indicated that two groups of South Carolina beverage milk consumers preferred different types of beverage milks. Adults always indicated a preference for a sample product containing at least a one percent higher level of total solids than any alternate product sampled. The youth group expressed a preference for a product having less fat and a higher solids-not-fat content than the beverage milk now available in South Carolina.

A comprehensive economic study of the food dehydration industry was contracted with Battelle Memorial Institute. Initial results of a survey show the dried food industry is much larger than has been previously indicated from available statistics. The study will provide information on growth patterns in the industry, use made of dehydrated foods by types of users, costs of processing using different drying methods, raw materials used and their suitability, acceptance of dried foods compared to other food forms and improvements needed.

As a followup on the impact of convenience foods on food cost, work was initiated to assess the impact of these food forms on marketing margins and returns to farmers. Performance of selected convenience foods will be evaluated in terms of retail sales volume, prices, costs, profits, and returns to the farmer for his products going into convenience foods as compared to returns from sale of basic ingredients. Preliminary findings indicate that the farmer may get slightly less for some of his products going into convenience foods as compared to those less highly processed.

## B. Merchandising and Promotion

Work has been completed on a study to measure the response of promotion for frozen concentrated orange juice on returns to producers for oranges. A 25 percent positive shift (about 50 cents per box) in the farm level demand curve for fresh oranges was associated with a 318 percent increase in advertising investments for frozen concentrated orange juice.

Analysis of consumer purchases of selected agricultural products are carried out on a continuous basis to provide current information to aid farm organizations and marketing firms in making such decisions as the allocation of production between fresh and processed uses and in evaluating advertising and merchandising inputs. During the 1965-66 citrus season, use of frozen concentrated orange juice and the proportion of families buying have increased substantially but remained below 1962 prefreeze levels despite heavier supplies. In addition, purchases of canned single strength orange juice were approximately 20 percent above the level of the previous season. Purchases of fresh grapefruit were lower but purchases of other citrus products were above previous years' levels. Use of non-citrus juices and canned and frozen fruit drinks was up from the 1964-65 season.

A study of economic aspects of the Arizona Citrus Industry shows that the present trend is upward for production and marketing costs, and these costs will likely increase in the future. However, certain tax advantages in grove developments tend to offset part of the increase in operating costs.

Further analysis of milk consumption data resulting from a study on varying levels of promotional investments reveals that some gains resulted from new users. Additional sales data covering a period of 1 year after the sales test ended - March 1965 through February 1966 - indicate the intensified promotion has exerted a residual or carryover sales influence greater than expected of approximately 4 percent after promotional investments returned to normal levels.

Other research is conducted to identify and quantify the effects of specific factors on sales of agricultural products. This research includes analysis of historical data and data generated through controlled experiments designed to test the sales effectiveness of specific merchandising practices in self-service retail outlets such as methods of display, pricing policies, consumer packages (types, sizes, color, etc.), point-of-purchase information, the impact of retailer featuring, and product identification. Work carried out in cooperation with the Texas Agricultural Experiment Station indicates that if supported with a well-planned educational program, quick-frozen broilers can be merchandised competitively with ice-packed birds and are acceptable to consumers. Moreover, the quick-frozen broilers offer advantages in quality maintenance, as well as other cost advantages.

A study is being conducted to appraise the economic implication of promotional programs for livestock and livestock products. The impact of

promotional programs on prices at various levels of distribution for hogs and the resulting influences on production are being examined. Preliminary analysis reveals significant shifts in the demand for hogs between season, and even months within seasons. Other influences include price of broilers and potential supplies. Similar work is being carried out for lamb and mutton, but with major emphasis on factors influencing distribution and sales.

Work is underway to appraise the extent of and factors affecting the level of trade participation in commodity promotional programs. Initial work concerns a cooperative effort with the Maine State Potato Commission on their problems of trade participation to develop guidelines for other commodity groups. This study is also designed to discover and identify alternative techniques of obtaining trade cooperation.

Results of previous promotion research have consistently shown that trade participation is critical to the success of commodity promotional endeavor. Research conducted during recent years appraising the influence of various promotional programs for agricultural products is being brought together and analyzed from the viewpoint of (1) drawing inferences with widespread application to agriculture, and (2) identifying critical areas where further research is needed.

A contract study is underway to identify characteristics of users and non-users of floral products, average volumes purchased, average prices paid and products competing with floral products.

Research was expanded to develop and test a system using improved techniques to guide feed manufacturer management in making routing procurement and production decisions. The three major components of the system are: (1) forecasting sub-systems (production, sales, and prices); (2) inventory policy evaluation sub-system; and (3) allocation sub-system. This system has been tested and found feasible by a major midwestern feed manufacturer. Techniques and systems developed appear applicable to other agricultural firms.

The range of response to pricing, advertising, and space allocation policies at retail indicates that movement of food products into consumption would be aided by advanced management tools that would give timely evaluations of the effectiveness of these practices. For example, the impact of featuring of specific meat items on margins, costs, returns, total sales and sales of competing meats has been measured through analysis of data collected over a 36-week period in a sample of supermarkets. Findings indicate that relationships resulting from specific product mixes and merchandising practices can be quantified. In turn, these relationships can be used by management in planning features, product mix, or other aspects of meat merchandising with a better understanding of the impact of cost, sales, volume, and profit. Other research in this area is being conducted to appraise the influences of retailer featuring for fresh peaches and apricots on F. O. B. prices received by growers.



### C. Distribution Programs and Market Outlets

During the past year, emphasis has been given to planning and initiating a study under contract of food usage in the away-from-home market. This study is financed jointly by the Department and the Food industry--spearheaded by the Institutional Foodservice Manufacturers Association, National Restaurant Association, and the National Association of Food Equipment Manufacturers.

In the Away-From-Home Market for Food study, the structure of the food service industry, food buying practices, and operating elements affecting food usage are being evaluated. Data were collected from a national sample of 6,000 food service establishments. A preliminary report is scheduled for the last quarter of 1966. A second phase of the study is designed to yield national and regional estimates of away-from-home usage--type, quantity, and container size. Findings, together with those from the Nationwide Survey of Household Food Consumption, 1965, will provide for the first time a near-aggregative measure of domestic food usage. Detailed food data will be collected from more than 3,600 food service establishments during a 1-year period beginning late in 1966.

Also, available information is being collected on away-from-home food outlets excluded from the survey--military establishments, Federal and State hospitals and correctional institutions, airlines, and other common carriers. This work is being done by ERS personnel.

For the first time since 1961, a limited study was undertaken to provide indicators of the impact of the Food Stamp Program in a major city. A survey of retail food store sales in low-income areas of Washington, D.C., was conducted before (May-June 1965) and after (October-November 1965) initiation of the Food Stamp Program in the metropolitan area. Findings again showed greater than average gains in meat sales (6 percent versus 4 percent for all foods after seasonal adjustment). Contrary to earlier findings, sales gains were greater among chain stores than for independent ones. Prices of selected food items showed little change with initiation of the Food Stamp Program.

A study of expenditures and consumption by low-income rural families has been completed--based upon application of step-wise regression techniques to data from earlier surveys in Kentucky and Texas. Findings pertinent to further research relating to food programs include the desirability of breaking out information from households reporting little or no money income for separate study; giving additional consideration to the role of home foods and fuel; and food expenditure patterns by racial groups.

Strong public interest in the Department's food programs have entailed substantial work requirements for special studies and consultation during the past year. Particular reference is made to the Child Nutrition Act of 1966, special assistance to "neediest" schools under the National School Lunch Program, development of the Program Planning and Budgeting System (PPBS),



and reports of availability of and participation in food programs by minority groups.

Assistance was provided in developing an evaluation of OPERATION HELP, through which Federal commodities were made available to 500,000 low-income Mississippi residents. Also, a special study was made relative to the applicability of the Food Stamp Program to needs of low-income families in the Mississippi Delta area prior to initiation of the first program in this locality--Coahoma County, Mississippi.

#### PUBLICATIONS--USDA AND COOPERATIVE PROGRAMS

##### A. Products and Services

Corkern, Ray S., July 1966. "Crambe Abyssinica--A Bibliography, 1945-65," ERS-299. 9 pp.

Corley, E. M., Janzen, J. J., and Kerr, H. W., December 1965. "Consumer Preference for Modified Whole Beverage Milks in South Carolina," MRR-522. 24 pp.

Enochian, Robert V., January 31, 1966. "The Economics of Frozen Bakery Products," Bakers' Weekly. Vol. 209, No. 5, pp. 21-25.

Hoofnagle, William S., February 1966. "Information Needed for Decision Making," presented at a Symposium on Synthetics and Substitutes for Agricultural Commodities.

Linstrom, Harold R., and Keeler, Joseph T., June 1965. "Restaurant Use of Kona Coffee in Metropolitan Honolulu," AER-66. 17 pp.

Trotter, Warren K., February 1966. "The Economic Outlook for Increased Industrial Use of Cereals," Cereal Science Today, 6 pp.

##### B. Merchandising and Promotion

Branson, Robert E., Lester, Barnard, and Gardner, Fred, August 1966. From Whence to Whither in Broiler Marketing - An Analysis of Factors Influencing the Market for Prepackaged Frozen Cut-up Broilers. Texas A&M Agr. Experiment Station Departmental Information Report 66-3. 13 pp.

Brown, Sidney E., June 1966. The Demand for Flowers-by-Wire. MRR-762. 36 pp.

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Havas, Nick, December 1965. Profile of the Retail Florist Industry 1964. MRR-741, 27 pp.

Henderson, Peter L., Measuring Effects of Varying Levels of Advertising Investments on Sales of Fluid Milk. Reprinted from 1965 Business and Economic Statistics Section Proceedings of the American Statistical Association.

Hill, J. S., Hillman, J. S., and Henderson, P. L., October 1965. Some Aspects of the Arizona Citrus Industry, Technical Bulletin 168, published by the Agricultural Experiment Station, the University of Arizona, in cooperation with the Economic Research Service, U. S. Department of Agriculture.

Marin, Bruce W., Ott, Leland E., and Walker, Francis E., June 1966. Meat Department Labor Requirements - A Tool for Improved Retail Management. Ohio Agr. Research and Development Center. Research Bulletin 982, 39 pp.

Proceedings of Workshop, May 1966. Seminar on Market Development and Promotion for Agricultural Products, ERS-274, 126 pp.

Stafford, Joseph H., Snyder, James C., December 1965. Production Planning and Inventory Control System for Feed Manufacturers. Purdue Univ. Research Bulletin 803. 22 pp.

Stafford, Joseph H., and Snyder, James C., September 1965. Simulator Program for Feed Manufacturing Inventory Control. Purdue Univ. Research Progress Report 208. 24 pp.

Twining, Carl R., and Henderson, Peter L., December 1965. Promotional Activities of Agricultural Groups. MRR-742. 32 pp.

#### C. Distribution Programs and Market Outlets

Ogren, Kenneth E., April 18, 1966. Marketing Research: A Tool for Decision Making. Presented at meeting of the Society for the Advancement of Food Service Research.

### RELATED PUBLICATIONS OF STATE EXPERIMENT STATIONS

#### A. Products and Services

None

B. Merchandising and Promotion

Brown, J. D. and Cravens, M. E., Retail Margins on Tomatoes.

Cravens, M. E., Effect of Labelling Individual Tomatoes on Rate of Retail Sale.

Cravens, M. E. and Kretchman, Dale, Comparisons of Consumer Panel Ratings of Quality of Tomatoes Grown Under High CO<sub>2</sub> with Those Under Normal Culture.

Darrah, L. B. and Jack, J. W., Jan. 1965. Merchandising Broilers in Supermarkets. Dept. of Agricultural Economics, Cornell Univ., AER-164.

Goodrich, Dana C., Jr., September 1965. Effectiveness of Landscaping Information in Retail Nurseries. Dept. of Agricultural Economics, Cornell Univ., AER-174.

Jack, J. W., Darflet, J., and Stratton, C. E., August 1965. New Marketable Poultry and Egg Products: No. 15. Chicken Chuckalona, Chicken Chunk Roll, and Poulet Supreme. Department of Agricultural Economics, Cornell University, AER-172.

Jack, Robert L., June 1965. Promotion of Nursery Products: Effects on Sales and Consumer Research Publication. West Virginia University Agricultural Experiment Station, Bulletin 510.

Nyberg, A. J., August 1965. Effectiveness of Apple Advertising; Media and Themes, Department of Agricultural Economics, Cornell University, AER-176.

Nyberg, A. J., October 1965. "Sales Response to Apple Advertising," American Fruit Grower, Vol. 85, Issue 10, page 8.

Rock, J. S., and Darrah, L. B., February 1965. Survey of Integrated Egg Production. Department of Agricultural Economics, Cornell University, AER-165.

Weber, J. and Folz, W. 1965. The Nature of Non-food, Non-price Competition in Food Store Advertising, Agricultural Experiment Station Bulletin 455.

C. Distribution Programs and Market Outlets

None

Line Project Check List -- Reporting Year October 1, 1965, to September 30, 1966

Work and project number	Work and line project titles	Work locations during past year	Line project included in Summary of progress (Yes-No)	Area and subheading
ME 1	Market structure and costs in the marketing of farm products			
ME 1-6 (Rev.)	Role of agricultural marketing and other firms in supplying additional employment and higher incomes for residents of low-income farm areas	Maryland Univ. Project closed and personnel transferred to Econ. Develop- ment Division	Yes	I-A
ME 1-7 (Rev.)	Patterns of growth and change in the structure of agricultural marketing and supply industries and their probable economic consequences	Washington, D.C. Lafayette, Ind.	Yes	I-A
ME 1-12 (Rev. 2)	Marketing situation and outlook reports	Washington, D.C.	Yes	I-B
ME 1-13 (Rev. 2)	Farm-to-retail spreads, the marketing and other statistics on entire marketing process	Washington, D.C.	Yes	I-B
ME 1-16 (Rev.)	Measurement of aggregate economic relations in marketing farm food products	Washington, D.C.	Yes	I-B
ME 1-19	Pricing practices of food firms of selected products <u>1/</u>	Washington, D.C.	Yes	I-B
ME 1-21	Effects of selected Federal regulatory and service activities on the market structure, conduct, and performance of agricultural marketing and processing industries	Lafayette, Ind.	Yes	I-A
FE-ME 1	Changing structures and performance of the American Agricultural Chemical Industry and its coordination with farms	Washington, D.C.	No	
ME 2	Economics of marketing farm animals and animal products			
ME 2-43	Procurement policies and practices of large- volume distributors of eggs <u>1/</u>	Washington, D.C. Columbus, Ohio Kingston, R. I.	Yes	I-A
ME 2-45	A study of the capacity and flexibility of facilities in milk manufacturing plants <u>1/</u>	St. Paul, Minn. Washington, D.C.	Yes	I-B
ME 2-47	Marketing margins for fluid milk <u>1/</u>	Washington, D.C.	Yes	I-B
ME 2-48	Marketing Economics Division cooperation in NCM-26 project, "Changing market structure and organization of midwest dairy industry"	Washington, D.C. Urbana, Ill.	Yes	I-A
ME 2-52	Market structures and pricing in the livestock industries <u>1/</u>	Washington, D.C.	Yes	I-A
ME 2-53	Information systems for managerial decision- making in fluid milk plants	Washington, D.C. Lafayette, Ind.	No	

- Continued

1/ Discontinued during reporting year.



Line Project Check List -- Reporting Year October 1, 1965, to September 30, 1966--Continued

Work and project number :	Work and line project titles :	Work locations during past year :	Line project included in	
			Summary of progress (Yes-No) :	Area and subheading :
ME 2-54 :	Cost-efficiency studies in marketing livestock, meats and meat products :	Washington, D.C. :	Yes :	I-B :
ME 2-55 :	Determining costs, margins and trends in the poultry and egg industries :	Washington, D.C. :	Yes :	I-B :
ME 2-56 :	Quarterly measurement and analysis of costs, margins, and efficiency for 70 selected fluid milk processing and distributing plants :	Washington, D.C. :	No :	:
ME 2-57 :	Efficiency in managing the total milk supplies in fluid milk markets :	Washington, D.C. :	No :	:
ME 2-58 :	Evaluation of existing and proposed programs of wholesale beef price reporting in southern United States :	Washington, D.C. : College Station, Texas :	No :	:
ME 2-59 :	Optimum location of livestock and meat marketing facilities in the southern region (SM-27) :	Washington, D.C. : Raleigh, N. C. :	No :	:
ME 2-60 :	The impact of changing market structure upon the competitive position of the dairy industry in the South (SM-28) :	Washington, D.C. : Experiment, Ga. :	No :	:
ME 2-61 :	Improving the efficiency of egg and production- input marketing :	Washington, D.C. : Durham, N. H. :	Yes :	I-B :
ME 2-62 :	Livestock marketing efficiency in the West :	Washington, D.C. : Denver, Colo. :	Yes :	I-C :
ME 2-63 :	Interregional competition in the poultry and egg industries :	Washington, D.C. : St. Paul, Minn. : Brookings, S. D. :	Yes :	I-C :
ME 2-64 :	Factors affecting spreads between farm and consumer prices for livestock and meats <u>2</u> / :	Washington, D.C. : East Lansing, Mich. : Lafayette, Ind. : St. Paul, Minn. :	No :	:
ME 3 :	Economics of marketing farm crops :	:	:	:
ME 3-8 (Rev.) :	Competitive position of western processed fruits and vegetables (in cooperation with WM-17 (Rev.) :	Berkeley, Calif. :	Yes :	I-C :
ME 3-22 :	Costs and efficiency of looseleaf tobacco auctions :	Kentucky :	No :	:
ME 3-24 (Rev.) :	Optimizing use of flue-cured leaf tobacco grades in producing tobacco strips :	Washington, D.C. :	No :	:
ME 3-30 (Rev.) :	Changes in structure of wholesale fresh fruit and vegetable markets :	Washington, D.C. :	Yes :	I-A :
ME 3-67 :	Structure and performance of the lower Rio Grande Valley fruit and vegetable market <u>1</u> / :	Washington, D.C. :	Yes :	I-A :

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1/ Discontinued during reporting year.

2/ Initiated during reporting year.

Line Project Check List -- Reporting Year October 1, 1965, to September 30, 1966--Continued

Work and project number	Work and line project titles	Work locations during past year	Line project included in	
			Summary of progress (Yes-No)	Area and subheading
ME 3-75	Economic analysis of the structure and performance of the Red River Valley potato market	St. Paul, Minn.	Yes	I-A
ME 3-76	Competitive relationships in marketing citrus products	Gainesville, Fla.	No	
ME 3-77	Study of Canadian tobacco auctions	Guelph, Ontario, Canada	No	
ME 3-81	Economic evaluation of the commercial utilization pattern for peanuts at the sheller level	Washington, D.C.	Yes	I-B, C
ME 3-88	An economic analysis of Federal market orders for fruits, vegetables and potatoes	Washington, D.C.	Yes	I-A
ME 3-90	Prices and margins in marketing fruits and vegetables	Washington, D.C.	Yes	I-B
ME 3-91	Marketing industrial molasses <u>1/</u>	Washington, D.C.	Yes	I-A
ME 3-92	Economics of marketing sugar	Washington, D.C.	Yes	I-A, C
ME 3-94	Economics of marketing floricultural products	Washington, D.C.	Yes	I-A
ME 3-95	The economic performance, status, trends, and prospects for the woody ornamental nursery industry	Washington, D.C.	Yes	I-A
ME 3-96	Economic effects of noncaloric sweeteners on the sugar industry	Washington, D.C.	Yes	I-A
ME 3-97	Existing capacity and resource requirements for processing fruits and vegetables in the southern region	Clemson, S. C.	No	
ME 3-98	An equilibrium analysis of the production, distribution, and marketing of winter vegetables	Raleigh, N. C.	No	
ME 3-99	Marketing margins and costs for sugar beets, sugarcane, peanuts and leaf tobacco for selected consumer products	Washington, D.C.	Yes	I-B
ME 4	Economics of new, expanded, and alternative uses of farm products			
ME 4-2 (Rev.)	Market potential for superconcentrated (7-fold) fruit juices	Washington, D.C.	No	
ME 4-6 (Rev.)	Market potential investigations for products from new crops for industrial, feed, food, or pharmaceutical use	Washington, D.C.	No	
ME 4-17	Market potentials for Hawaii farm products	Honolulu, Hawaii	Yes	II-A
ME 4-21	Market potential for sweetpotato flakes in selected markets	New Orleans, La. Washington, D.C.	No	

- Continued

1/ Discontinued during reporting year.

Line Project Check List -- Reporting Year October 1, 1965, to September 30, 1966--Continued

Work and project number :	Work and line project titles :	Work locations during past year :	Line project included in	
			Summary of progress (Yes-No) :	Area and subheading :
ME 4-22 :	Market potential for cereal grain starch products in new industrial uses <u>1/</u> :	Washington, D.C. :	No :	:
ME 4-24 :	Market potential for water soluble gums and mucilages <u>1/</u> :	Washington, D.C. :	No :	:
ME 4-25 :	Market analysis of the processing and marketing of maple sirup and other maple products <u>1/</u> :	Pennsylvania State University :	Yes :	II-A
ME 4-27 :	Economic potential for crambe abyssinica as a new commercial farm crop <u>1/</u> :	Washington, D.C. :	No :	:
ME 4-29 :	Market potential for safflower oil :	Washington, D.C. :	Yes :	II-A
ME 4-30 :	Market potential for modified beverage milk in the Southeast United States :	Clemson Univ. :	Yes :	II-A
ME 4-31 :	Economic impact of innovations in food processing :	Washington, D.C. :	Yes :	II-A
ME 4-32 :	Market potential for hides with new product outlets, new marketing practices, methods of trimming, grading and pricing :	Washington, D.C. :	Yes :	II-A
ME 4-33 :	Market potential for frozen bakery products and doughs :	Washington, D.C. Berkeley, Calif. :	Yes :	II-A
ME 4-35 :	The potential market for sterilized milk concentrate in selected types of institutions :	Madison, Wis. Washington, D.C. :	Yes :	II-A
ME 4-36 :	Impact of synthetics on the domestic market for products of agricultural origin <u>2/</u> :	Washington, D.C. New Orleans, La. :	Yes :	II-A
ME 5 :	Evaluation of the effects of merchandising methods and practices on sales of and consumer demand for farm products :	:	:	:
ME 5-9 :	Increased product sales through improved merchandising in retail food stores <u>1/</u> :	Washington, D.C. :	Yes :	II-B
ME 5-14 :	Economics of inventory control and space management in warehousing agricultural commodities <u>1/</u> :	Washington, D.C. :	Yes :	II-B
ME 5-17 :	Evaluation of the sales effectiveness of selected advertising and promotion techniques for broilers :	Washington, D.C. Ohio :	Yes :	II-B
ME 5-21 :	Costs and returns of promotional investment on consumption of milk and its products :	Washington, D.C. :	Yes :	II-B
ME 5-22 :	Market analysis and development of the desert citrus laboratory of Arizona and California :	Washington, D.C. :	Yes :	II-B
ME 5-23 (Rev.) :	Analysis of consumer purchases of selected fresh and processed fruit products in relation to consumer characteristics, geographic regions, and other market factors :	Washington, D.C. :	Yes :	II-B

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1/ Discontinued during reporting year.

2/ Initiated during reporting year.

Line Project Check List -- Reporting Year October 1, 1965, to September 30, 1966--Continued

Work and project number	Work and line project titles	Work locations during past year	Line project included in Summary of : progress : (Yes-No)	Area and subheading
ME 5-24	Economics of pricing, merchandising, and labor utilization in retailing meat products	Washington, D.C.	Yes	II-B
ME 5-25	Measurement of food stocks and nonconcentrated fluids on inventory in away-from-home eating establishments <u>1/</u>	Washington, D.C.	No	
ME 5-26	Evaluation of effects of weekly features on the retail sales of selected fresh commodities, on sales of nonfeatured products and on store volume <u>1/</u>	Washington, D.C.	Yes	II-B
ME 5-27	Evaluation of the effects of various promotional themes and techniques on sales of fresh peaches	Washington, D.C. State of Wash.	No	
ME 5-32	Economic implications of advertising and merchandising programs for livestock and livestock products		Yes	II-B
ME 5-34	Appraisal of trade participation in agricultural commodity promotional programs and factors affecting level of participation <u>2/</u>	Washington, D.C.	Yes	II-B
ME 5-35	Evaluation of sales response to alternative promotional techniques and combinations, thereof, for agricultural products <u>2/</u>	Washington, D.C. Hawaii	No	
ME 6	Distribution programs research			
ME 6-5	Surveys and analyses of effect of food stamp operations on sales of food in retail outlets <u>1/</u>	Washington, D.C.	Yes	II-C
ME 6-6	Market for food in public and private schools	Washington, D.C.	Yes	II-C
ME 6-8	Surveys and analyses of commodity distribution programs for low-income households	Washington, D.C. Mississippi	No	
ME 6-9	Central food preparation and distribution in urban school systems	Washington, D.C.	Yes	II-C
ME 6-10	Evaluation of the institutional market for food	Washington, D.C.	Yes	II-C
ME 6-11	Low-income rural family expenditures and consumption related to the food stamp and direct distribution programs	Washington, D.C.	Yes	II-C
ME 6-12	National surveys of food consumption in households for the mid-1960's guidelines for food marketing	Washington, D.C.	Yes	II-C
ME 6-13	Food stamp program research	Washington, D.C. Mississippi	Yes	II-C
ME 7	Transportation costs and services and their economic effect on agriculture			

- Continued

1/ Discontinued during reporting year.

2/ Initiated during reporting year.



Line Project Check List -- Reporting Year October 1, 1965, to September 30, 1966--Continued

Work and project number :	Work and line project titles	Work locations during past year :	Line project included in Summary of : progress : (Yes-No) :	Area and subheading
ME 7-8 :	Analysis of the economic possibilities of using air freight for moving agricultural commodities <u>1</u> /:	Washington, D.C.:	Yes :	I-C
ME 7-10 :	Ocean freight rate series <u>1</u> /	Washington, D.C.:	Yes :	I-C
ME 7-13 :	Effects of transportation changes on the structure of grain marketing and grain marketing firms (contributing project to NCM-30, "Grain Marketing Institutions and the Structure of Grain Markets") <u>1</u> /:	Washington, D.C.:	No :	
ME 7-14 :	Effect of transportation on the South's grain marketing structure	Washington, D.C.:	No :	
ME 7-15 :	Hay flows and transportation charges <u>1</u> /	Washington, D.C.:	No :	
ME 7-16 :	Transportation of raw cotton by motortruck in Southeastern United States <u>1</u> /	Washington, D.C.:	No :	
ME 7-17 :	Economic analysis of trends in grain transpor- tation in the United States	Washington, D.C.:	Yes :	I-C
ME 7-18 :	An analysis of the effects of changes in transportation costs on the regional location of the flour milling industry	Ames, Iowa :	Yes :	I-C
ME 7-19 :	Development and maintenance of annual indexes of rates and total costs for the transportation of agricultural commodities, and analysis of the pricing of agricultural transportation services <u>2</u> /:	Washington, D.C.:	Yes :	I-C
ME 7-20 :	Agricultural commodities on domestic waterways: rates and flows	Washington, D.C.:	Yes :	I-C
ME 8 :	Economics of marketing fibers, grains, and oilseeds			
ME 8-1 :	Charges and practices in marketing cotton <u>1</u> /	Washington, D.C.:	Yes :	I-B
ME 8-2 :	Marketing margins and costs for fibers and textiles <u>1</u> /	Washington, D.C.:	Yes :	I-B
ME 8-3 :	Price spreads and costs for grain and grain products	Washington, D.C.:	Yes :	I-B
ME 8-4 :	Marketing margins for fats and oils in selected consumer products	Washington, D.C.:	Yes :	I-B
ME 8-5 :	Cotton ginning efficiency and cost	Arizona Mississippi :	Yes :	I-B
ME 8-8 :	Cost and efficiency in the operation of feed mixing plants <u>1</u> /	Washington, D.C.:	Yes :	I-B
ME 8-10 :	Costs and efficiencies in bread distribution <u>1</u> /	Washington, D.C.:	No :	
ME 8-13 :	Economic evaluation of cotton quality <u>1</u> /	South Carolina :	Yes :	I-B

- Continued

1/ Discontinued during reporting year.

2/ Initiated during reporting year.

Line Project Check List -- Reporting Year October 1, 1965, to September 30, 1966--Continued

Work and project number :	Work and line project titles	Work locations during past year	Line project included in	
			Summary of progress (Yes-No)	Area and subheading
ME 8-14	: An economic evaluation of alfalfa hay grading <u>1/</u>	: Nevada	: Yes	: I-B
ME 8-18	: Organization, operation, and efficiency of the : marketing system for raw wool	: Washington, D.C.	: Yes	: I-A
ME 8-24	: Marketing and the use of cotton waste <u>1/</u>	: Mississippi	: Yes	: I-B
ME 8-25	: Structure and practices of the Western grain : marketing industry	: Washington, D.C. : Arizona	: Yes	: I-C
ME 8-26	: Structure and performance of the U.S. grain : marketing system	: Washington, D.C. : Oklahoma	: Yes	: I-C
ME 8-27	: Changes and performance of the major oilseed : markets in the U.S.	: Washington, D.C.	: No	:
ME 8-28	: Costs of handling and storing grains, fibers, : oilseeds, and their products	: Washington, D.C. : Mississippi	: Yes	: I-B
ME 8-29	: Price quality relationships for cotton and cotton : products <u>2/</u>	: South Carolina	: Yes	: I-B
ME 8-30	: Marketing margins, practices, and cost for fibers : and textiles <u>2/</u>	: Washington, D.C.	: Yes	: I-B
ME 8-31	: The dimensions and appraisal of the mixed feed : industry <u>2/</u>	: Washington, D.C.	: No	:

1/ Discontinued during reporting year.

2/ Initiated during reporting year.

















